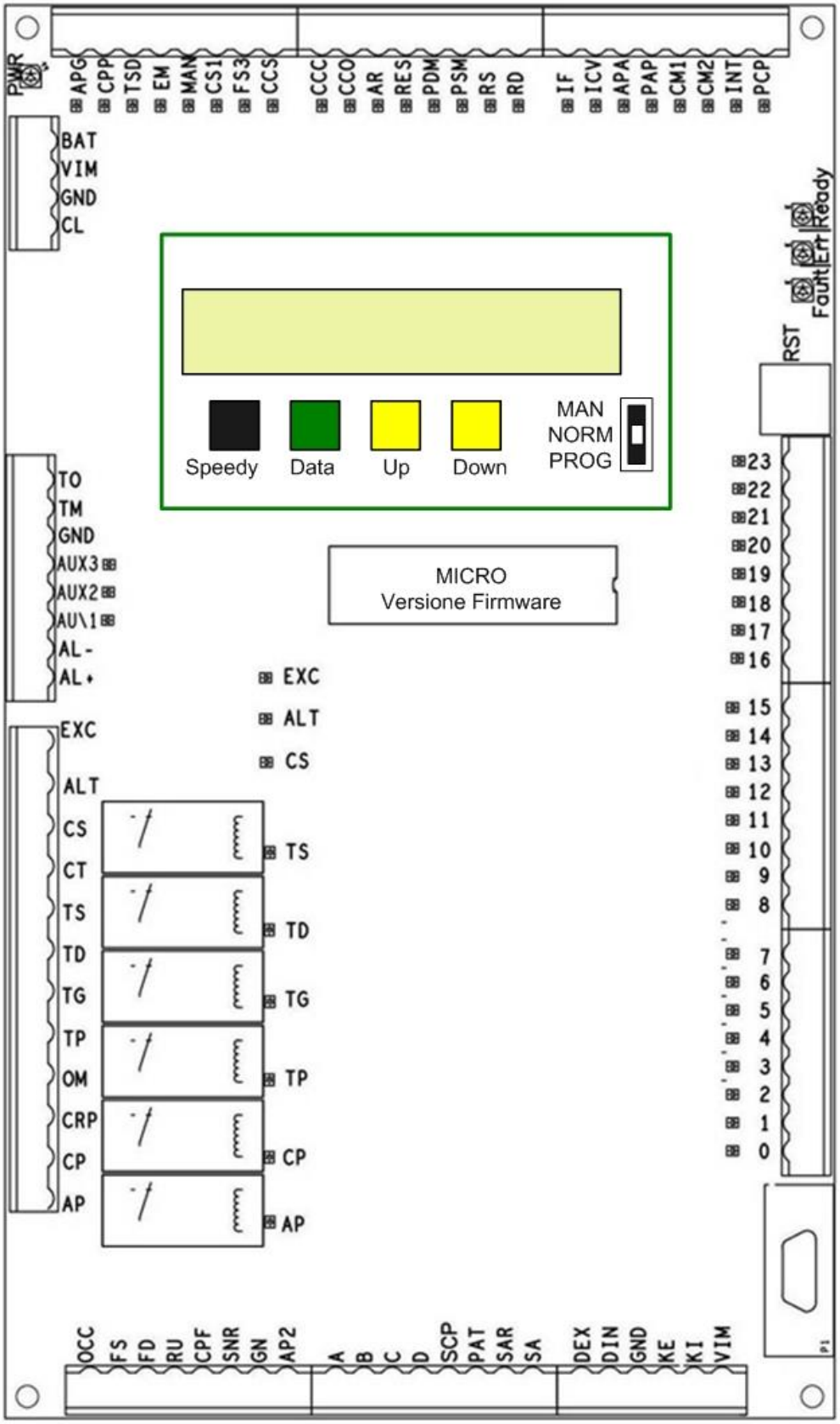
ENGLISH
USER MANUAL

LIFT
CONTROL BOARD
VEG2000

V4.3.115K

Revision 1
05/09/16

LAYOUT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1. FAULT MESSAGES

1.1 DESCRIPTION

System fault will be shown with its own blinking code on the board display and if it persists for more than two seconds it will be stored in memory.
Board can store in memory up to 32 faults, then it continues overwriting the older ones.
Together with the fault code is stored also the time in hours (up to a maximum of 99 hours) elapsed since the previous failure.
In case of wrong insertion of microcontroller on the socket, board display is off and leds on the external display are on.
In case of shortcut on transistor outputs, leds on the external display will blink.

1.2 FAULT CLASSIFICATION

Faults are grouped in three categories (A, B, C) on the basis of their effect on the system.
Here it follows the description of each category:

FAULT CATEGORY	DESCRIPTION
A	Permanent system halt with its own blinking code. With blinking code each call is denied. If the system is hydraulic, cabin is moved to floor 0 (if previously programmed). Fault will remain even if power line is deactivated. Keep SPEEDY button pressed for 2 seconds to reactivate the system, or activate program mode and set the value '0' at the address 41, or put the system in maintenance mode.
B	Interlocking plant until fault is present. Calls are accepted even with blinking code. Code keeps blinking until next call is done or power line is deactivated or manual cancel is performed or SPEEDY button is pressed.
C	Programming errors. They are not stored in faults history. Wrong values set during programming. Programming halt for 2 seconds with a fixed programming error code. Previously stored value is kept, wrong value is not stored.

Faults of types A and B block the normal service and car cannot move until faults persist.

1.3 FAULT READING

To read the last 32 faults stored in memory you must press simultaneously SPEEDY and DATO push buttons.
To display the fault you must press these keys for at least 1 second. Once the code is shown, releasing the keys the fault is cancelled (to cancel the fault, after you release the keys you must wait one second without any pressing).
Reading is completed when '99' value is shown.
Faults are shown starting from the most recent.

1.4 FAULT LIST TOTAL CLEARING

To cancel all the faults from the list with a single operation, you must keep pressed SPEEDY button and hit 3 times DATO. You must wait at least half of a second between each DATO hit and, at the 3rd hit, SPEEDY and DATO must be kept pressed until '99' is shown.

1.5 FAULT LIST

FAULT CODE	FAULT CATEGORY	FAULT DESCRIPTION	Ref. paragraph
0 – 31	**B**	Missed start due to malfunction of the safety contact or safety contact has been opened during the run and operator couldn't close the doors.	5.17 CS
37	**B**	IF , ICV sensor doesn't match doors zone sensor (APA), IF or ICV fault, or APA fault.	5.7 APA 5.26 ICV/IF
38	**B**	Failed floors count ascending. IF/DB or ICV/DA sensors don't switch properly or wrong floors number (address '32' value greater than effective floors number). Stop at top or bottom floor.	5.26 ICV/IF
39	**B**	Failed floors count descending. IF/DB or ICV/DA sensors don't switch properly or wrong floors number (address '32' value greater than effective floors number). Stop at top or bottom floor.	5.26 ICV/IF
40	**B**	Stop zone not found: wrong placement sensors or IF fault if IF/ICV.	5.26 ICV/IF
41	**B**	DRS or DRD sensors always opened or wiring fault.	5.35 RD/RS
42	**B**	Stop zone too short or stop delay too long (address '26').	6.6 Delayed Stopping
43	**B**	ICV slowing down sensor fault (IF/ICV configuration only). Stop on the floor on IF.	5.26 ICV/IF
44	**B**	'High speed' contactor's solenoid or doors opening relays jammed	5.8 APG
45	**B**	Missed start during phasing procedure.	5.17 CS
46	**B**	'Low speed' contactor or closing doors relays jammed.	5.16 CPP
47	**B**	Ascent or Descent contactors jammed.	5.44 TSD
48	**B**	Faulty operator during opening. Doors partially opened or still closed. (APG contact open, CS closed)	6.12 Doors
49	**B**	Opening doors contactor fault or wiring fault with doors still closed or safety contact fault with opened doors. (APG closed, CS closed)	5.8 APG, 6.12 Doors
50	**B**	Closing doors contactor fault or wiring fault with doors still opened or safety contact fault with closed doors. (CPP closed, CS opened)	5.16 CPP 5.17 CS 6.12 Doors
51	**B**	Descent contactor coil fault or wiring fault	5.19 CT 5.44 TSD
52	**B**	Ascent contactor coil fault or wiring fault	5.19 CT 5.44 TSD
53	**B**	'low speed' contactor coil fault or wiring fault	5.16 CPP
54	**B/A**	DRS always closed or RS input always to ground or wrong floors number (address 32 is less than effective floors number). (at the second fault in a row the halt is permanent)	5.35 RD/RS
55	**B/A**	DRD always closed or RD input always to ground or wrong floors number (address 32 is less than effective floors number). (at the second fault in a row the halt is permanent)	5.35 RD/RS
56	**B/A**	Motor thermal protection	7.6 Engine Temperature
57	**A**	FS3 input doesn't switch from lower floor (RD) to the upper one (RS).	5.23 FS3
58	**C**	Value programmed not valid. Value stored is maintained.	3.2.3 Programming Mode
59	**C**	Lift stops' number faulty (> 32 or < 2). Value stored is maintained.	3.2.3 Programming Mode
61	**B**	Operator faulty in closing doors and doors partially opened or completely opened or safety contact fault with closed doors. (CPP open, CS open)	6.12 Doors
62	**B**	Internal cabin serial fault or wiring fault.	…
63	**B**	External cabin serial fault or wiring fault.	…
64	**B**	Speed change not done, 'high speed' contactor jammed.	5.8 APG
65	**B**	'high speed' contactor coil fault or wiring fault	5.16 CPP
67		Re-opening devices (CM or PAP) active over maximum time	7.2 Re-opening Devices
68	**B**	Short circuits on the outputs	
69	**B**	Failure to slow down on excessive speed or rephasing (V>800incr/sec)	…
70	**B**	Thermoresistance that measures the oil temperature.	TO
72	**B**	Fault inverter, make sure that the inverter is not in fault status. verifies that the input 9-FLT (DB-15 connector on vvv_f interface expansion) is closed.	
76	**B**	Maximum travel time for floor approaching in up direction expired It occurs when the maximun travel time (TMC) expires for the first time The lift is not blocked and you can try again.	7.3 Maximum Travel Time
77	**B**	Maximum travel time for floor approaching in down direction expired.	7.3 Maximum Travel Time

		It occurs when the maximun travel time (TMC) expires for the first time. The lift is not blocked and you can try again.	
78	**B**	Maximum travel time for high speed in up direction expired. It occurs when the maximun travel time (TMC) expires for the first time . The lift is not blocked and you can try again.	7.3 Maximum Travel Time
79	**B**	Maximum travel time for high speed in down direction expired. It occurs when the maximun travel time (TMC) expires for the first time . The lift is not blocked and you can try again.	7.3 Maximum Travel Time
80	**A**	Maximum travel run time expired. It occurs after two consecutive times that the maximum travel time expires. The first time the maximum travel time expires one of the fault 76, 77, 78 or 79 occurs, according to the state the lift was, when the time TMC has expired.	7.3 Maximum Travel Time
81	**A**	System overrun.	5.10 BAT 5.20 EM 5.21 EXC 5.35 RD/RS
82	**A**	Re-levelling fault. (re-levelling timeout)	9.1 Relevelling
83	**A**	Safety circuit fault. (control on CS1)	5.18 CS1
84	**A**	Run direction opposite to set run direction. (opening RD in ascent, opening RS in descent)	5.35 RD/RS 7.4 Run Direction
85	**A**	uncontrolled movement of car	3.2.3 Programming Mode.
86	**A**	Error control of the switch 1 on the brake or on the second descent valve	9.11 Amendament A3
87	**A**	Error control of the switch 2 on the brake or on the second descent valve	9.11 Amendament A3
88	**A**	Shaft access attempt (Valid for systems without heading).	**…**
89	**A**	Fault control A3 amendment failed	
…	**…**	…	**…**
90 (*)	**B**	System Reset – WDT Timeout	
91 (*)	**B**	System Reset – Brownout	
92 (*)	**B**	System Reset – MCLR from run	
93 (*)	**B**	System Reset – MCLR from sleep	
94 (*)	**B**	System Reset – WDT from sleep	
95 (*)	**B**	System Reset – RST Instruction	
…	…	…	
98 (*)	**B**	System Reset	
…	**…**	…	

(*)The alarms 85, 86, 87, 90, 91, 92, 93, 94, 95 and 98 are referred to the diagnostics of the board. If any of this alarms occurs you must immediately report the problem.

1.6 IMMEDIATE INFORMATION

When the system is in Running mode you can display the active state of some system signals, pressing DATA push button, by the following codes:

CODE	DESCRIPTION
0-31	Missed expansion serial at floor XX, if the code is equal at number of floor (add. 32) no expansion serial missing.
41	ALT pressed.
42	Photoelectric sensor obscured (CM).
43	Opening door push button pressed (PAP).
44	Closing door push button pressed (PCP).
45	Overload (CCS).
46	Full load (CCC).
47	Car busy (CCO).
48	Alarm push button (AA)
49	Emergency (EM)
50	Ascent inspection button pressed (PSM).
51	Descent inspection button pressed (PDM).
52	Inspection (MAN).
53	Fire service mode
54	Internal mode
55	Duplex mode
60	Countdown of the hours, completed (add.47, 48,49 = 00)
62	Lift moving high speed down
63	Lift moving high speed up
64	Lift moving low speed down
65	Lift moving low speed up
66	Door closing side 1
67	Door opening side 1
68	Door closing side 2
69	Door opening side 2
70	Lift busy
99	Normal work, no immediate information

2. BOARD PROGRAMMING

2.1 "PROGRAMMABLE FUNCTION" TABLE

ADDRESS	DATA	DESCRIPTION		REF.
0	0	No beep on car push button	AP2 = second entrance door opening activation	5.38 SNR, 5.6 AP2 6.12.6 Multi-Entrances
	1	No beep on car push button	AP2 signals the activation of Inspection Mode	
	2	Beep on car push button	AP2 = second entrance door opening activation	
	3	Beep on car push button	AP2 signals the activation of Inspection Mode	
1	0	OPEN DOORS parking	Plant with 2 speeds	6.14 Parking 6.18 Speed
	4	OPEN DOORS parking	Plant with 1 speed	
	8	CLOSE DOORS parking	Plant with 2 speeds	
	12	CLOSE DOORS parking	Plant with 1 speed	
2	0	Normal selector (ICV)	Manual doors (CP= Sliding block activation) (AP= Gong activation)	6.11 Near Landing and Slowing Down 6.12 Doors
	16	Normal selector (ICV)	Automatic doors (CP= Closing door command) (AP= Opening first door activation)	
	32	Long selector (ICV)	Manual doors (CP= Sliding block activation) (AP= Gong activation)	
	48	Long selector (ICV)	Automatic doors (CP= Closing door command) (AP= Opening first door activation)	
3	0	Internal mode (INT = Internal mode activation) (SCP = IF sensors for INVERTER control)		5.27 INT 5.37 SCP 6.12.6 Multi Entrances 6.17 Inverter Management 9.8 Fire Service Mode
	64	Three entrances (INT = Door photodetector for third entrance) (SCP = Open signal for the third entrance)		
4	0	Stopping on the synchronizing sensors during inspection service mode	Inspection operation in high speed	9.6 Inspection Mode
	1	Stopping on the synchronizing sensors during inspection service mode	Inspection operation in low speed	
	2	Stopping at extreme landing during inspection service mode	Inspection operation in high speed, low speed on synchronizing sensors	
	3	Stopping at extreme landing during inspection service mode	Inspection operation in low speed	
5	0	Arriving with fixed light	Plant in halt after return at P0	8.1.3 Arrival Signalling, 8.5 'Reserved' Signal
	4	Arriving with fixed light	Plant immediately in Halt (look at the *Note*)	
	8	Arriving with blinking light	Plant in halt after return at P0	
	12	Arriving with blinking light	Plant immediately in Halt (look at the *Note*)	
6	0	No full load sensor (CCC)	Traction plant	7.5 Movable platform
	16	No full load sensor (CCC)	Hydraulic plant	
	32	With full load sensor (CCC)	Traction plant	
	48	With full load sensor (CCC)	Hydraulic plant	
7	0	Normal slowdown magnetic sensors placement		6.5 Landing and Slowing Down Zone's Magnetic Sensor Layout
	64	Inverted slowdown magnetic sensors placement		
8	0	1 GONG in up and 1 in down direction	Arrival + Position (serial outputs type A) (ref. Serial board User Manual)	6.8 Gong
	1	1 GONG in up and 1 in down direction	Arrival and Position separated (serial outputs type B) (ref. Serial board User Manual)	
	2	1 GONG in up and 2 in down direction	Arrival + Position (serial outputs type A) (ref. Serial board User Manual)	
	3	1 GONG in up and 2 in down direction	Arrival and Position separated (serial outputs type B) (ref. Serial board User Manual)	
	64	IF/DB e ICV/DA close at landing		

ADDRESS	DATA	DESCRIPTION		REF.
9	0	Gong on speed change	Synchronizing/phasing at landing 0	6.8 Gong 9.7 Synchronizing
	4	Gong on speed change	Synchronizing/phasing at the upper landing	
	8	Gong on car stopping	Synchronizing/phasing at landing 0	
	12	Gong on car stopping	Synchronizing/phasing at the upper landing	
10	0	Sent alarm signalling on landing serial board (ref. Serial board user manual)	Door's control disabled (control panel without doors contactors AP and CP, board doors operator)	5.12.1 Doors Controls
	16	Sent alarm signalling on landing serial board (ref. Serial board user manual)	Door's control enabled (control panel with doors contactors AP and CP, direct command door motor)	
	32	Without Sent alarm signalling on landing serial board (ref. Serial board user manual)	Door's control disabled (control panel without doors contactors AP and CP, board doors operator)	
	48	Without Sent alarm signalling on landing serial board (ref. Serial board user manual)	Door's control enabled (control panel with doors contactors AP and CP, direct command door motor)	
11	0	Serial wiring disabled		6.4 Serial and Parallel Wiring
	64	Serial wiring enabled		
12	0	Operator OFF during run	return at floor 0 after 14 minutes ENABLED (hydraulic plants only)	6.12 Doors 6.14.1 Parking Operation
	1	Operator OFF during run	return at floor 0 after 14 minutes DISABLED (hydraulic plants only)	
	2	Operator ON during run	return at floor 0 after 14 minutes ENABLED (hydraulic plants only)	
	3	Operator ON during run	return at floor 0 after 14 minutes DISABLED (hydraulic plants only)	
13	0	Automatic synchronizing	SINGLE CALL PLANT	2.5 Programmable input/output 9.7 Synchronizing
	4	Automatic synchronizing	COLLECTIVE PLANT	
	8	Synchronizing after call	SINGLE CALL PLANT	
	12	Synchronizing after call	COLLECTIVE PLANT	
14	0	DA-DB (ref. Picture No.1)	Collective plant Standard management	5.26 ICV/IF 6.5 Landing and Slowing Down Zone's Magnetic Sensor Layout 6.16 Plant type 8.2 Direction
	16	DA-DB (ref. Picture No.1)	Collective plant Easy management	
	32	ICV-IF (ref. Picture No.1)	Collective plant Standard management	
	48	ICV-IF (ref. Picture No.1)	Collective plant Easy management	
15	0	IF/DB e ICV/DA open at landing		5.26 ICV/IF, 6.5 Landing and Slowing Down Zone's Magnetic Sensor Layout
	64	IF/DB e ICV/DA close at landing		

NOTE: if immediate halt is programmed with '**4**' or **'12'** at **address 5**, board performs the following functions :

- enable re-levelling with elevator halted;
- on rope elevators, **fault '81'** generates plant jam
- enable check on run direction (**fault '84'**)
- enable phasing with stop or maintenance out of floor in high speed plants

Halt after return to floor 0 (programming '0' or **'1'** at the address **5)** happens only in the following conditions:

- elevator is hydraulic
- elevator is halted but without code **fault '44' and '62'**
- not in inspection operation
- not in 'PRESET mode'

2.2 "PROGRAMMABLE TIMES" TABLE

ADDRESS	LIMIT VALUES	LABEL	DESCRIPTION	REF.
16	2 – 45 sec.	**TAP**	Opening doors waiting time	5.33 PCP 6.9 Immediate Starting 6.12 Doors
17	2 – 45 sec.	**TOP**	Maximum time door opening command is active.	6.12 Doors
18	2 – 45 sec.	**THC**	Maximum time door closing command is active.	6.12 Doors
19	2 – 99 tenths of sec.	**TRA**	Door opening delay after stop at floor and delay on door opening (pre-opening) earlier then the detection of APA signal with safety circuit (TRA>=70, delay=TRA-70).	6.12 Doors
20	0 – 99 tenths of sec	**TIG**	Gong pulse duration (0 → disabled)	6.8 Goong
21	10 – 99 sec.	**TMP**	Maximum time between door closure and 'no car start' fault is signalled.	5.17 CS 7.2 Re-opening Devices
22	10 – 99 sec	**TMC**	Maximum travel run time. Maximum timeout during which drive commands are activated between floors (they are reset next to the stopping zone and to the slowing down zone) (If <10 → TMC=typical; If >=80 time = 80 + (tmc-80)*10). If = 99 control disable.	7.3 Maximum Travel
23	1 – 99 tenths of sec	**RCPV**	Slowing down delay	6.11 Enlarged Slowing Down Zone and Non-Regular Floor Distances 6.18 Speed
24	0 – 99 tenths of sec	**TOC**	Time during which the "Busy" signal is ON after start closing doors.	6.12 doors 8.6 Reserved Signal
25	0 – 99 tenths of sec	**TST**	OLEODINAMIC plant: - 1-69 →TP Y/Delta; - 70-99 →TP always ON and TG delayed of TST-70 * If TST <70 and it is an odd value, the board check the activation of the CPP input before activating the TS signal. ROPE plant: - 0-69 →TP low speed; - 70-99 →TP delayed of TST – 70;	5.16 CPP 5.40 TG 5.43 TP 6.2 Delta/Star Starting
26	0 – 99 tenths of sec.	**TRIF**	Stop delay after magnetic sensors stop area detection	5.17 CS
27	1 – 99 x 10 sec.	**TSN**	Waiting time since quenching 'busy' signal before moving the car to the programmed floor at address '34'.	6.14 Parking
28	1 – 99 min.	**SBA**	Battery detachment time after Emergency procedure activation (EM input) and no further A (alarm) button press. (99 → No detachment)	6.3 Battery
29	0 – 99 tenths of sec	**CHF**	0-93= TMR3 between FS3 input and CPF output [dec. of sec.] 94= TMR3 between FS3 input and CPF output , value =addr. 27 [minutes]. 95=The output CPF is used for signaling out of service. 96= CPF is used as the output enable forced closure and alarm sound's. >= '97', the CPF output signal drive the high speed.	5.15 CPF 5.23 FS3 6.15 Timers 9.8 Fire Fervice Mode
30	0 – 99 sec.	**RIP**	Re-levelling timeout (0→ control disabled) SAP function activation on PCP input programming an even value	9.1 Re-levelling 5.33 PCP 6.12.2 Door Opening Exclusion During Testing Operation
31	0 99 tenths of sec.	**L13**	TMR1 between CS1 and RU	5.18 CS1 5.36 RU 6.15 timers

2.3"PROGRAMMABLE PARAMETERS" TABLE

ADDRESS	LIMIT VALUES	LABEL	DESCRIPTION	REF.
32	2 – 32	**NF**	Total number of landings	6.12.6 Multi-entrances
33	0 – 78	**NS**	Underground floors	8.1.2 Underground Floors
34	0 – 32	**NST**	Standing floor (Return after the time programmed at address 27)	6.14 Parking
35	0 – 99	**PB1**	First irregular floor (lower interfloor distance than normal) or landing next to enlarged slowing down zone, adding 50 to the corresponding landing. (Non - regular distance from the floor above).	6.11 Enlarged Slowing Down Zone and Non-Regular Floor Distances
36	0 - 32	**SPA1**	First landing with reversed parking state of the door.	6.14.2 Parking With Open or Close Doors
37	0 - 32	**SPA2**	Second landing with reversed parking state of the door.	6.14.2 Parking With Open or Close Doors
38	0 – 31	**EIS**	Sensors unlinked up with the car serial board (Ref. Serial boards user manual) (0 = none, 1 = RS, 2 = RD, 4 = ICV, 8 = IF, 16 = CCC, Sum = more sensors at the same time).	7.5 Movable Platform 10.2.1 Wiring to the VEG0400 Car Serial Board
39	0 – 32	**NPM**	Landing fireman (ref.'Fire service mode')	9.8 Fire Service
40	0 – 99	**PB2**	Second irregular floor (lower interfloor distance than normal) or landing next to enlarged slowing down zone, adding 50 to the corresponding landing. (Irregular distance from the floor above).	6.11 Enlarged Slowing Down Zone and Non-Regular Floor Distances
41	0	**SBL**	Unlock code (If ≠ 0 blocked plant)	
42	0 – 99	**PB3**	Third irregular floor (lower interfloor distance than normal) or landing next to enlarged slowing down zone, adding 50 to the corresponding landing. (Irregular distance from the floor above).	6.11 Enlarged Slowing Down Zone and Non-Regular Floor Distances
43	0 – 32	**PPE**	Emergency landing called (automatic call) but only in down direction	9.2 Emergency
44	0 - 99	**RITUSC**	Tenths of sec. – Delay time on switching contactors'control TS, TD, TP, TG, RCP, RAP	6.12 Doors 7.1 Safety Circuit
45	0 - 99	**RITING**	Tenths of sec. – Delay time on control inputs EXC, ALT, CS, RD, RS, TSD, APG, CPP, EM, CS1. delay reverse direction driving	6.12.1 doors controls 9.6 Inspection Mode
46	0 - 99	**LETT**	centes of sec – Rebound time on calls	5.31 PAP
47	0 - 99	**DU**	Decades/Units of the max number of working hours or of time elapsed for six-monthly check	
48	0 – 99	**MC**	Thousands/Hundreds of max number of working hours or of time elapsed for six-monthly check	
49	0 – 99	**CDM**	Hundreds/Decades of thousands of max number of working hours. If CDM < 90 it is enabled the countdown of max number of working hours If CDM = 90 it is enabled the hours counter for the six-monthly check. If CDM > 90 it is enabled the hours counter for the six-monthly check with the activation of the SAR output to signal that the time (4300h) has expired.	
50	1 – 7	**POR0**	Car entrances at landing 0	6.12.6 Multi-Entrance
51	1 – 7	**POR1**	Car entrances at landing 1	
52	1 – 7	**POR2**	Car entrances at landing 2	
53	1 – 7	**POR3**	Car entrances at landing 3	
54	1 – 7	**POR4**	Car entrances at landing 4	
55	1 – 7	**POR5**	Car entrances at landing 5	
56	1 – 7	**POR6**	Car entrances at landing 6	
57	1 – 7	**POR7**	Car entrances at landing 7	
58	1 – 7	**POR8**	Car entrances at landing 8	
59	1 – 7	**POR9**	Car entrances at landing 9	
			1 = First car entrance 2 = Second car entrance 4 = Third car entrance Sum = more entrances at the same landing. For the simultaneous opening of the first and second car entrances disable the third car entrance and program '4' at address 3	
60	0 - 127	**NUMCH**	Number of closing attempts with security contact faulty '+16' = fixed mapping of serial output	6.12.1 Doors'Control 10 Serial Expansion

61	0 -127	**CESER**	Serial boards calls management (ref. Serial boards user manual) 1 = external serial enabling (VEG0400) and exclusion of landing serial boards (VEG800, ITF800, LCD600, VEG0700, FLOORDIS…) 2 = Car serial board exclusion (VEG400, SERCAR...) 4 = Car wiring (parallel) 8 = up reservation activation 16 = position coded on 0-23 32 = A,B,C,D binary (no inverted binary) 64 = Multiplexing on call's inputs. Programming '16' = position and '32'= decoded binary encoding is activated gray code on ABCD and the 7-segment code on the outputs P0, P1 .... sum = more options at the same time	2.5 Programmable Inputs/Outputs 5.2 A/B//C/D 8.1 Position /Arrival/ Reservation 6.4 Serial or Parallel Wiring 10.1.3 Landing Calls Management 9.3 Platform Management
62	0 – 127	**NSEC**	1 = Local input MAN n.c. 2 = ptc probe (TM n.o.) and oil temperature (TO) exclusion 4 = CS1 safety circuit control enabling 8 = Input APA→ re-levelling zone and door pre-opening 16 = close doors re-levelling 32 = local input CCS n.c. 64 = Delay increased at the starting Sum = More options at the same time.	7.1 Safety Circuit, 6.1 Door's Pre Opening, 7.6 Engine Temperature 9.1 Relevelling 9.3 Platform Management
63	0 - 127	**MISC**	1 = Movable platform disabled 2 = MAN PRESENT mode 4 = duplex plant 8 = low speed mode between not regular floors 16 = Master duplex mode 32 = hoistway without head and pit 64=A3 emendament actived Sum = More options at the same time.	6.11 Enlarged Slowing Down Zone and Non-Regular Floor Distances 6.16.4 Duplex 7.5 Movable Platform
64	0-127	**…**	2=Arrows run floor serial 4= Arrows run cab serial 8=Enable run counter add. 47/48/49 (otherwise work as counting hours) 16= Function increased waiting for loading and unloading goods (delay waiting with open doors) 32=Out of service normally closed (only in serial)	…
80*	0 – 99	**ABL**	Set 0 for the management through encoder activation	
81*	0 – 99	**DFR**	(encoder increment)	
84*	0 – 99	**D1P**	(x 50 encoder increments) deceleration distance V1P	
85*	0 – 99	**D2P**	(x 50 encoder increments) deceleration distance V2P	
86*	0 – 99	**D3P**	(x 50 encoder increments) deceleration distance V3P	
87*	0 – 99	**D4P**	(x 50 encoder increments) deceleration distance V4P	
88*	0 – 99	**LMG**	(x 4 encoder increments) dimension of door area magnets	
89*	0 – 99	**DCP**	(x 50 encoder increments) low speed deceleration distance (rephasing and maintenance)	
90	0-99		Multiplex index for connection with MCU Control board (RS232). Note: put +16 if the version of the supervision software for PC is previous version V4.3.0	
91	0-15		Number of floors missing from the bottom of a multiplex system with MCU board than the other simplex	
92	0-99		Closing up speed	
93	0-99	**VMN**	Maintenance and re-phasing speed (% with reference to the analog output from 0 to 7 V)	
94	0-99	**V1P**	Speed V1P	
95	0-99	**V2P**	Speed V2P	
96	0-99	**V3P**	Speed V3P	
97	0-99		99= normal mode 0-98=monitoring I/O	
98	0-2	**LANG**	Language of programming Keypad: 0=Italian; 1=English; +16= Automatic calls active. +32= disable the opening (for test)	
99	0-99		0=Normal mode 2=Test input(output); 98=Restore last configuration sent by the PC software (0 to 63) 99= restore default;	

*** Verify that the version of the control board supports the management with ENCODER. At the end of the version there must be an E, for example, the version V4.3.102E manages the encoder.**

2.4 DEFAULTS TABLES

The control board is provided with the following default configuration.

3	00	Internal mode
4	02	Stop at furthermost floors in maintenance - Maintenance in high speed
5	04	Arriving with steady light - Plant immediately jammed
6	16	No full load car gestion - Hydraulic lift
7	00	Slowing down magnets normal disposition
8	01	1 Gong in up direction and 1 in down - Serial output type B (arrive-position separated)
9	08	Gong on floor stopping - Phasing at floor 0
10	32	No Signal alarm on external serial boards - No checking on door motion
11	64	Serial expansion boards link enabled
12	03	Door closure ON during cabin motion - No autom. car return to floor 0 after 14 minutes
13	04	Automatic phasing - Collective plan
14	16	DA - DB - DIF = Disable alarm button
15	64	IF/DB e ICV/DA closed at floor
16	04	Time door opening while occupied signal is active (OCC signal)
17	08	Max time door opening command is done before time out and fault.
18	08	Max time door closing command is done before time out and fault.
19	03	Door opening delay after stop at floor or pre-opening (>70)
20	20	Gong pulse duration. (0 -> disabled)
21	30	Max time after door closure, after which ‘no car start’ fault is signaled.
22	80	Max car run time. Max time drive commands active beetwen floors
23	01	Slowing down delay
24	50	Time during the 'Busy' signal is ON after start closing doors.
25	70	<70 TP Y/Delta (Odd val CPP control);>70 TP alw.on,TG Delayed
26	00	Stop delay time after landing detection.
27	99	Wait time since quenching ‘busy’ before automatic call programmed
28	60	Batt.detachment after EM input and no further A(alarm) butt.press
29	98	TMR3 between FS3 and CPF
30	12	Maximum releveling time
31	99	TMR1 between CS1 and RU
32	08	Total number of landings
33	10	Underground utilities
34	32	Standing floor
35	32	First irregular floor or enlarged slowing down zone
36	32	First landing where car stands with opened door
37	32	Second landing where car stands with opened door
38	31	Sensors unlinked up with the cabin serial board: RS RD ICV IF CCC
39	00	Landing fireman
40	32	Second irregular floor or enlarged slowing down zone
41	00	Unlock code
42	32	Third irregular floor or enlarged slowing down zone
43	32	Emergency landing called (automatic call) but only in down direction
44	15	Rebound time on output relais.
45	06	Rebound time on input relais
46	05	Rebound time on calls
47	00	Decades/Units of max number of runs.
48	00	Thousands/Hundreds of max number of runs
49	90	Hundreds/Decades of thousands of num. of runs
50-59	01	Car entrances at landing : First access…….
60	20	Maximum closure retry number when safety contact on doors is faulty.
61	22	CESER: Int Cab Ser Ex - Pres Without Ser Cab - Rev Decod Pos on A,B,C,D,E,….
62	26	NSEC: PTC sensor exclusion - En APA input - Relevel cl doors
63	09	MISC: Pres Car Excl - Low vel not reg floors
64	00	Reserved
65-79	00	Reserved
80	99	Set to 0 to handle activation by encoder
81	00	(Encoder Increments) Stop distance
82	00	Reserved
83	00	(x 50 Encoder Increments) Slowing distance VMN
84	00	(x 50 Encoder Increments) Slowing distance V1P
85	00	(x 50 Encoder Increments) Slowing distance V2P
86	00	(x 50 Encoder Increments) Slowing distance V3P
87	00	(x 50 Encoder Increments) Slowing distance V4P
88	00	(x 4 Encoder Increments) Port zone magnets size
89	00	(x 50 Enc. incr.) Slowing dist. At low speed
90	00	Simplex address on RS232
91	00	Reserved
93	00	Maint. And Reph. speed (percent. Compared to an. out. 0-10 V)
94	00	Halfway speed (V1P)
95	00	Halfway speed (V2P)
96	00	Halfway speed (V3P)
97	99	Local input/output supervising
98	01	Language
99	00	0=normal mode;; 2=test mode; 99=Reset EEPROM

2.5PROGRAMMABLE INPUTS/OUTPUTS (0/23)

In the control board, there are 24 proglammable I/O. This inputs/outputs are multiplexed on the control boards connectors 0-23. This I/O are used to collect calls in parallel mode and to provide the relative light signaling.

2.5.1 Programmable I/O (0-23)

In the table below are represented the most relevant I/O mappings for single call systems. In the table is also specified the programming of the control board (at address 13 and address 61) to obtain the desired I/O mapping.

CONTROL BOARD PIN (*)	PARALLEL						SERIAL			
	Parallel (One pole for floor position)			Parallel + Position with DEC16 (or binary)			Car Serial		CAR Serial + Position with DEC16 (or binary)	
	Up/Dw reserved	Dw reserved/ Single call	Single call (only car)	Up/Dw reserved	Dw reserved/ Single call	Single call (only car)	Up/Dw reserved	Dw reserved/ Single call	Up/Dw reserved	Dw reserved/ Single call
0	---	S/L0	C/L0	---	D/L0	C/L0	---	S/L0	---	D/L0
1	S/L0	D/L1	C/L1	S/L0	D/L1	C/L1	S/L0	D/L1	S/L0	D/L1
2	D/L1	D/L2	C/L2	D/L1	D/L2	C/L2	D/L1	D/L2	D/L1	D/L2
3	S/L1	D/L3	C/L3	S/L1	D/L3	C/L3	S/L1	D/L3	S/L1	D/L3
4	D/L2	D/L4	C/L4	D/L2	D/L4	C/L4	D/L2	D/L4	D/L2	D/L4
5	S/l2	D/L5	C/L5	S/L2	D/L5	C/L5	S/L2	D/L5	S/L2	D/L5
6	D/L3	D/L6	C/L6	D/L3	D/L6	C/L6	D/L3	D/L6	D/L3	D/L6
7	S/L3	D/L7	C/L7	S/L3	D/L7	C/L7	S/L3	D/L7	S/L3	D/L7
8	D/L4	C//L0	C/L8	D/L4	D/L8	C/L8	D/L4	D/L8	D/L4	D/L8
9	S/L4	C/L1	C/L9	S/L4	D/L9	C/L9	S/L4	D/L9	S/L4	D/L9
10	D/L5	C/L2	C/L10	D/L5	D/L10	C/L10	D/L5	D/L10	D/L5	D/L10
11	---	C/L3	C/L11	S/L5	D/L11	C/L11	S/L5	D/L11	S/L5	D/L11
12	C/L0	C/L4	P0	D/L6	C/L0	C/L12	D/L6	P0	D/L6	D/L12
13	C/L1	C/L5	P1	S/L6	C/L1	C/L13	S/L6	P1	S/L6	D/L13
14	C/L2	C/L6	P2	D/L7	C/L2	C/L14	D/L7	P2	D/L7	D/L14
15	C/L3	C/L7	P3	---	C/L3	C/L15	---	P3	S/L7	D/L15
16	C/L4	P0	P4	C0/L0	C/L4	C/L16	P0	P4	D/L8	D/L16
17	C/L5	P1	P5	C1/L1	C/L5	C/L17	P1	P5	S/L8	D/L17
18	P0	P2	P6	C2/L2	C/L6	C/L18	P2	P6	D/L9	D/L18
19	P1	P3	P7	C3/L3	C/L7	C/L19	P3	P7	S/L9	D/L19
20	P2	P4	P8	C4/L4	C/L8	C/L20	P4	P8	D/L10	D/L20
21	P3	P5	P9	C5/L5	C/L9	C/L21	P5	P9	S/L10	D/L21
22	P4	P6	P10	C6/L6	C/L10	C/L22	P6	P10	D/L11	D/L22
23	P5	P7	P11	C7/L7	C/L11	C/L23	P7	P11	---	D/L23
Max. N° STOPS	**6**	**8**	**12**	**8**	**12**	**24**	**8**	**12**	**12**	**24**

LEGEND

C/Ln = call push button at landing ‘n’ placed in car with its light
D/Ln =Call down push button at landing ‘n’ placed at landing
S/Ln =Call up push button at landing ‘n’ placed at landing
Pn = car (n) position light
0 - 23 = I/O connectors on the control board

NOTE : Pn lamps can signal even the blinking arrival programming the values ‘0’ or ‘2’ (arrival+position) at the address 8 and programming ‘8’ or ‘12’ at the address 5 (blinking arrival) .

The table below describes the values to be set to the addresses 61, 13 and 63 to get the maps as per the table previous.

			Address 61	Address 13	Address 63
Parallel	**Parallel**	**Up/Dw reserved**	+28	+4	---
		Dw reserved/ Single call	+20	+4 +0 +0	--- --- +2
		Single call (only car)	+18	+0	---
	Parallel + DEC16	**Up/Dw reserved**	+12	+4	---
		Dw reserved/ Single call	+4	+4 +0	--- ---
		Single call (only car)	+2	+0	---
Serial	**Car serial**	**Up/Dw reserved**	+24	+4	---
		Dw reserved/ Single call	+16	+4 +0	--- ---
	Car Serial + DEC16	**Up/Dw reserved**	+8	+4	---
		Dw reserved/ Single call	+0	+4 +0	--- ---

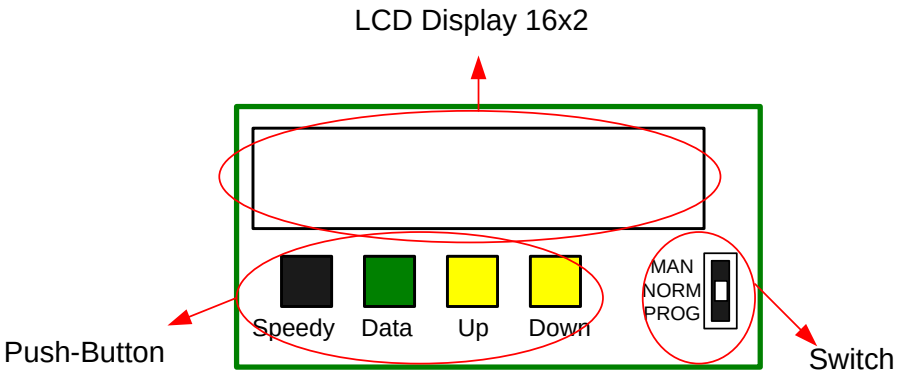
3. MULTIFUNCTION KEYPAD DISP900

The multifunction keypad DISP900 allows to configure all the parameters and function of the control board, allows to dysplay and to manage the alarm information, allows to monitor the state (active or inactive) of some I/O signals. It is possibile to mount the DISP900 keypad both in horizontal position and vertical position.
At address 98 it is possible to select the language for the programming Keypad DISP900: program value '0' for Italian or value '1' for English.

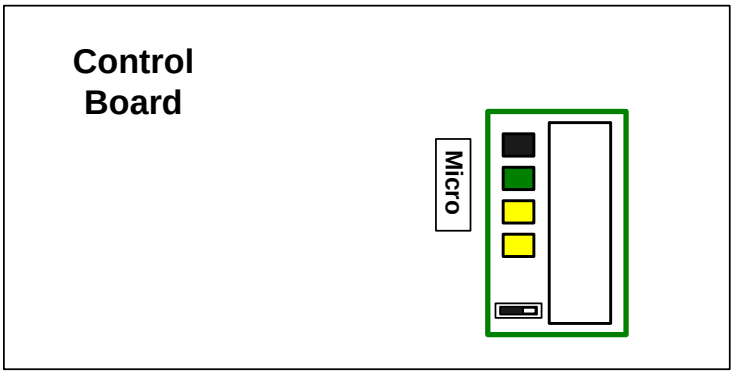
ADDRESS 98:

Set '**0**' for italian language

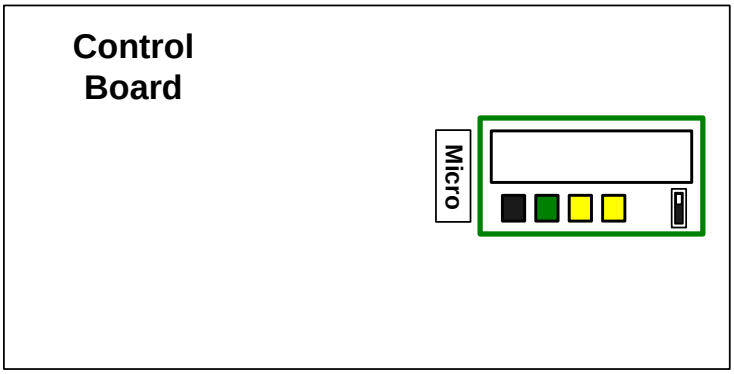
Set '**1**' for english language



Programming Keypad DISP900



Programming Keypad in Vertical Position



Programming Keypad in Horizontal Position

3.1 MULTIFUNCTION KEYPAD COMPONENTS

The multifunction keypad DISP900 is composed of:

- a 16x2 LCD display for the visualization of the informations;
- a three positions switch that allows to select operative mode of the control board;
- four multifunction push-buttons (SPEEDY, DATA, UP e DOWN) which allow the managment of programming operations and control board's informations;

3.1.1 PRESET Switch

It allows to change the operational mode of the control board between "Running mode" (if placed in NORM position), in "Programming mode" (if placet in PROG position) and in "Inspection mode" (if placed in MAN position).
Ref paragraph 3.2.3

3.1.2 DATA Push-Button

This push button performs the following functions:

- If it is pressed **during** standard **system working**, it is possible to display **IMMEDIATE INFORMATIONS**, (display the state of several signals). Ref paragraph 1.6
- Pressed **together with SPEEDY push button**, allows the board last stored faults consultation. Ref. paragraph 1.3
- In **PRESET** mode, that is during memory programming (Programming mode), displays the current data stored in memory at a specific address. Ref. paragraph 3.2.3

3.1.3 SPEEDY Push-Button

This push button performs the following functions:

- During permanent halt, allows **the system manual unblocking** (after solving the fault reason). Ref. paragraph 1.2
- Pressed **together with DATA push button**, allows the board last stored faults consultation. Ref. paragraph 1.3
- During **PRESET** mode, that is during memory programming (programming mode), if pressed together with UP or DOWN push button, allows to speed up the flow of the parameter list to reach faster the desired parameter (speeding up the flowing of displaied numbers). Ref. paragraph 3.2.3

3.1.4 UP Push-Button

This push button performs the following functions:

- During PRESET mode, that is during memory programming (programming mode), increases the value on the display. Ref paragraph 3.2.3.
- In Inspection mode, this push button moves the car in UP direction. Ref paragraph 9.6
- If pressed in Running Mode it activates an automatic call to the top floor if the board is programmed for single call mode or for collective mode. If the board is programmed for "Man-Present" operation it moves the car in up direction until the car reaches the top floor or until the push button is released.

3.1.5 DOWN Push-Button

This push button performs the following functions:

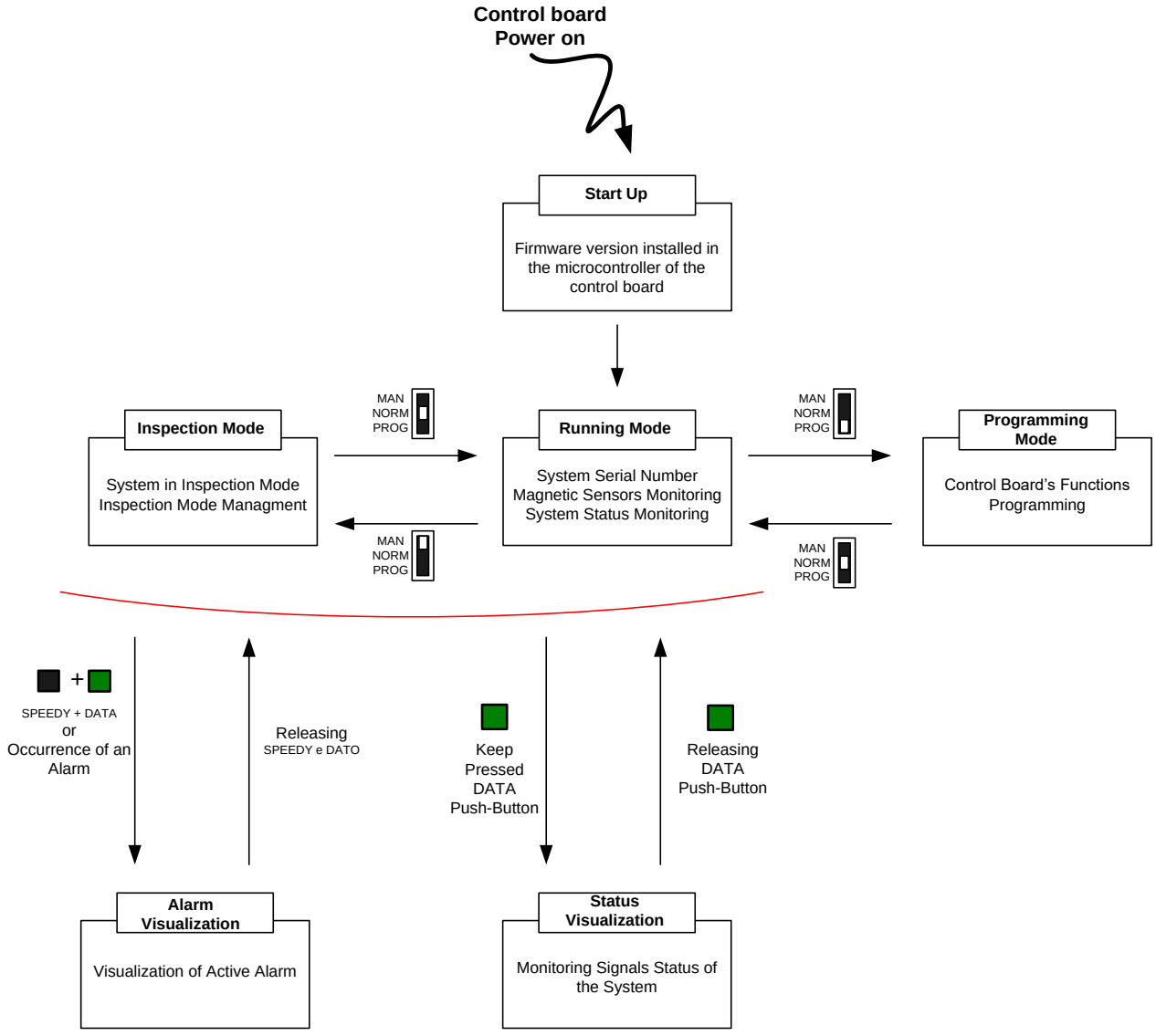
- During PRESET mode, that is during memory programming (programming mode), decreases the value on the display. Ref paragraph 3.2.3
- In Inspection mode, this push button moves the car in DOWN direction. Ref paragraph 9.6
- If pressed in Running Mode it activates an automatic call to the lowest floor if the board is programmed for single call mode or for collective mode. If the board is programmed for "Man-Present" operation it moves the car in up direction until the car reaches the lowest floor or until the push button is released.

3.2 System's Operative Modes Overview

The multifunction Keypad DISP900 permits to manage the operative mode of the control board and to display useful informations:

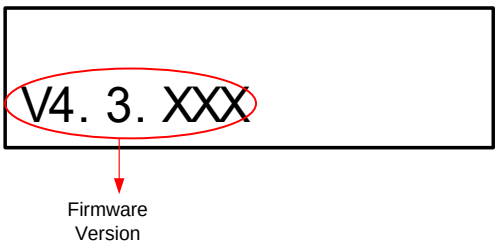
- **Start-up**: in this working mode you can check the firmware version installed in the microcontroller.
- **Running Mode**: you can monitor in real time the state (active or inactive) of inputs RS, RD, IF and ICV, you can have informations on working time of the systems, on system code number (if one had been assigned with the supervision software), on current position and next destination of the car.
- **Programming Mode**: in this working mode you can program the various parameters and functions of the control board.
- **Inspection Mode**: you can enter inspection mode and move the car using the the switch and the push-buttons on the multifunction keypad DISP900.
- **Alarm Check Mode**: you can check the alarm archive stored in the control board memory.
- **Input Status Check**: you can monitor the state of some input signals of the control board.

The figure below shows the state transition of the informations displayed on the multifunction keypad's display.



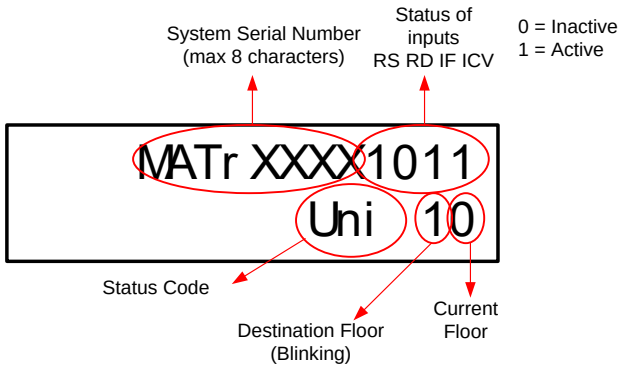
3.2.1 Start-Up

When the control board is powered, the display on the multifunction keypad visualize the firmware version installed on the control board microcontroller.
An example of the start-up screen is shown in figure below.



3.2.2 Running Mode

In running mode, you can monitor in real time on the display the state of inputs RS, RD, IF e ICV (0 = inactive and 1 = active), you can have informations on working time of the systems and on system code number (if one had been assigned with the supervision software).
Also you can check the current position and next destination of the car (blinking signalling). If the car is idle and there aren't other calls to serve, the field of the display reserved to the next destination signalling remains off and only the current position is visualized.



In the table below are listed the inputs' active state codes that are displayed during the normal working of the system.

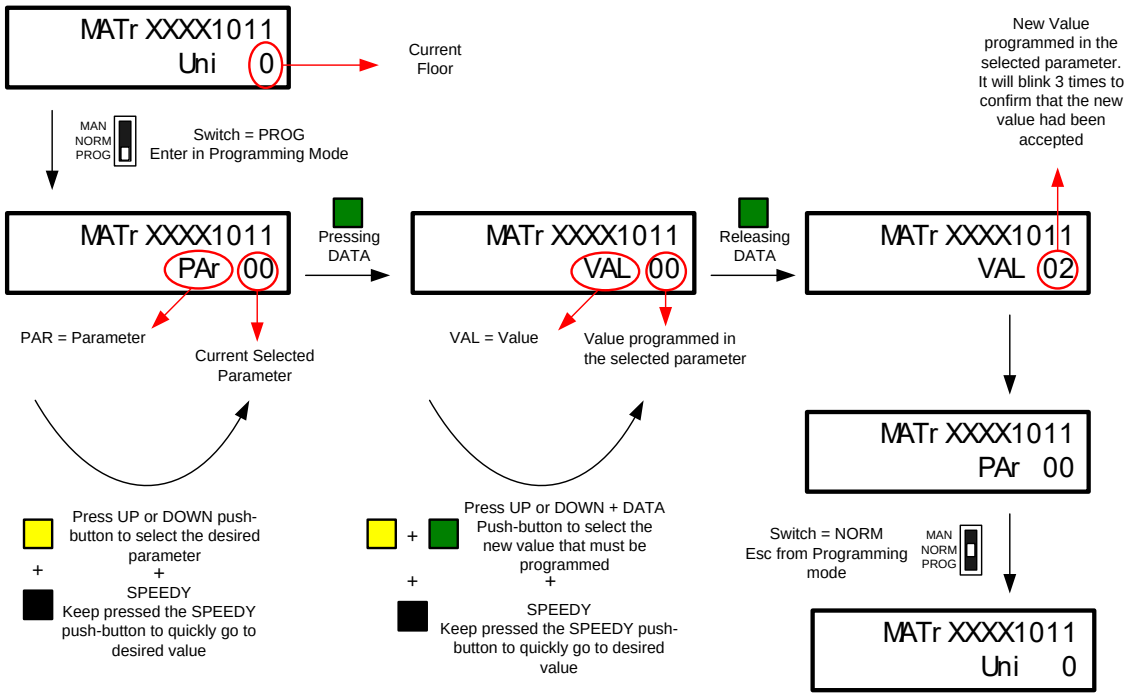
CODE	DESCRIPTION
ALT	ALT input signal interrupted.
FCM	CM input signal interrupted. Photodetector interrupted.
PAP	PAP input signal active. Door Opening Push-Button pushed.
PCP	PCP input signal active. Door Closing Push-Button pushed.
CCS	CCS input signal active. Overload active.
CCC	CCC input signal active. Full Load sensor active. Note: this code is displayed only if the Full Load check function is enabled programming at address 6 the value '32' or '48'.
CCO	CCO input signal active. Movable Platform active. Note: this code is displayed only if the Movable Platform check function is enabled not programming at address 63 the value '+1'
SOS	Alarm Push-button pressed.
EMP	EM input signal active. System in Emergency mode.
PSM	PSM input signal active. Up direction movement (in inspection mode) push-button pressed.
PDM	PDM input signal active. Down direction movement (in inspection mode) push-button pressed.
MAN	MAN input signal active. System in Inspection mode.
CEP	CEP (FS3) signal active. Displayed only if the fire service mode or the firefighters service mode are active
INT	INT input signal active.
DUP	Duplex System. Note: this code is displayed only if Duplex funcion is enabled (programming at address 63 the value '+4') and if the system is really communicating with the other system connected with the apposite duplex cable.
BVS	Low Speed in Up direction
AVS	High Speed in Up direction

BVD	Low Speed in Down direction
AVD	High Speed in Down direction
COL	Collective Calls system.
UNI	Automatic Single Calls system
UOM	'Man Present' Operation

The priority of the code visualization follow the same order of the table above. The codes that fill the highest position of the table have a priority higher than the ones that fill the lowest position in the same table. For example if both the CM input signal and the PCP input signal are active, the code FCM will be displayed.

3.2.3 Programming Mode

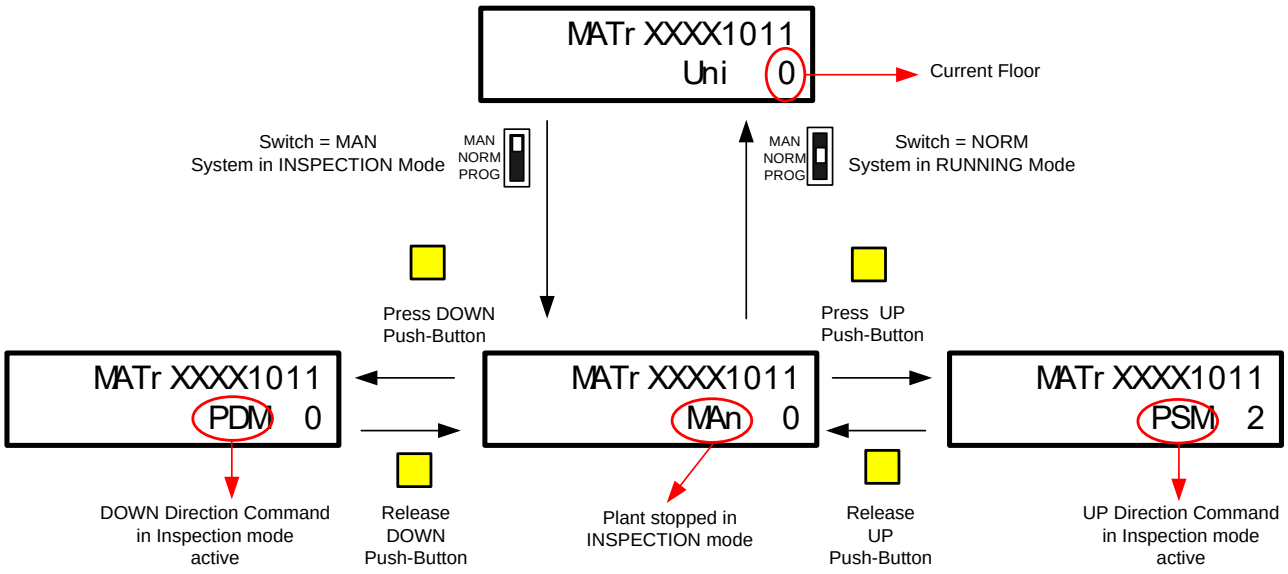
In Programming Mode is possible to set up the control board with all the function needed from the system.
To enter in Programming Mode, the system must be stopped and the push-button of the keypad DISP900 (SPEEDY, DATA, UP and DOWN) must be inactive.
The programming mode is activated moving the switch on the keypad in PROG position. In programming mode the system remains blocked with the "reserved" signal on.
In programming mode, in the field of the display reserved to the input state code, will be visualized the string PAR (PARAMETER) followed by the last address' number checked in the last board programming. If, in the meantime, a power outage had occurred will be displayed the number of the first address (00).
Now it is possible to reach the parameter that has to be visualized and setted using the UP and DOWN Push-buttons. Pushing together UP or DOWN push-button and SPEEDY, the scrolling of the parameter list can be speeded up.
When the desired address is reached, it is possible to display the setted value pushing the DATA push-button: in the field of the display reserved to the state code is visualized the string VAL (VALUE) and in the next numeric field is visualized the value currently setted in the selected parameter. Thi value can be modified keeping pushed the DATA button and pressing the UP or DOWN push button to select the new value. When the desired value had been reached, it is necessary to release the DATA button, the selected value will blink three times and the new value will be memorized in memory.
Keep one finger's on DATO button to modify the value and press UP or DOWN button to select the new setting. When the desired value is reached release the DATO button, if the memorization is correct the display will blink 3 times with the correct value.
Whenever the new value is wrong, the last value stored will remain and it will be displayed the fault code '**58**' (for functions) and code **'59'** (for stops number < 2 or > 16).When modifying "Programmable Times", if a value is out of range, the default value (shown in the previous table) is set automatically.
At the end, exit from program mode, moving the switch on DISP900 in NORM position, the plant is operative with the new settings (no power supply off is needed).
Each control board is pre-programmed with default values (default configuration), shown on previous tables.
In the figure below is represented the state diagram of the programming procedure and some example display's screens in the differ programming phases.


MATr XXXX1011
Uni 0
Current Floor
New Value programmed in the selected parameter. It will blink 3 times to confirm that the new value had been accepted
MAN NORM PROG
Switch = PROG
Enter in Programming Mode
MATr XXXX1011
PAr 00
Pressing DATA
MATr XXXX1011
VAL 00
Releasing DATA
MATr XXXX1011
VAL 02
PAR = Parameter
Current Selected Parameter
VAL = Value
Value programmed in the selected parameter
MATr XXXX1011
PAr 00
Press UP or DOWN push-button to select the desired parameter
+
SPEEDY
Keep pressed the SPEEDY push-button to quickly go to desired value
Press UP or DOWN + DATA Push-button to select the new value that must be programmed
Switch = NORM
Esc from Programming mode
MAN NORM PROG
MATr XXXX1011
Uni 0

3.2.4 Inspection Mode

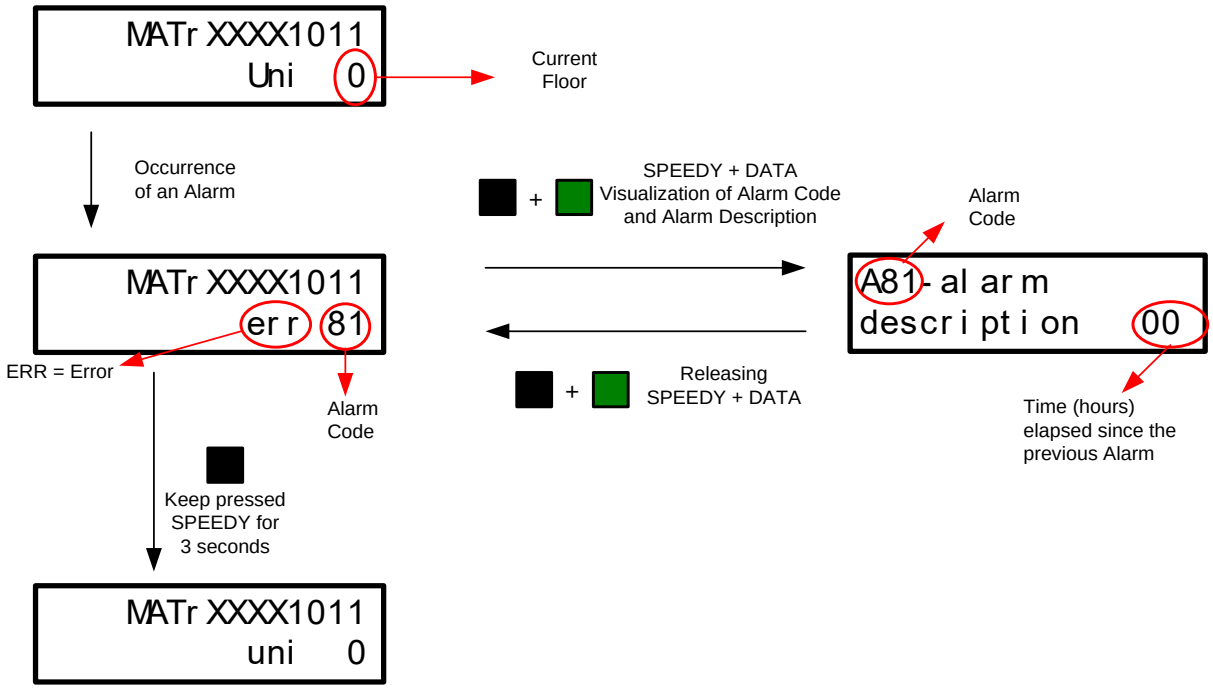
With the multifunction keypad DISP900 is possibile to manage the Inspection Mode. Ref Paragraph 9.6.
To enter in Inspection Mode it is necessary to move the switch on DISP900 in MAN position. In Inspection Mode, in the field of the display reserved to the state code is visualized the code 'MAN'. Now using SPEEDY+UP and SPEEDY+DOWN push buttons is possible to move the car respectively in up and in down direction.
Pushing the SPEEDY+UP push button the car will move in up direction and in the field of the display reserved to the state code will be visualized the code PSM (Up Direction in Inspection Mode active).
Pushing the SPEEDY+DOWN push button the car will move in up direction and in the field of the display reserved to the state code will be visualized the code PDM (Down Direction in Inspection Mode active).

In the figure below is resumed the Inspection Mode management made through the DISP900 keypad and some example display's screens in the differ Inspection Mode's phases.



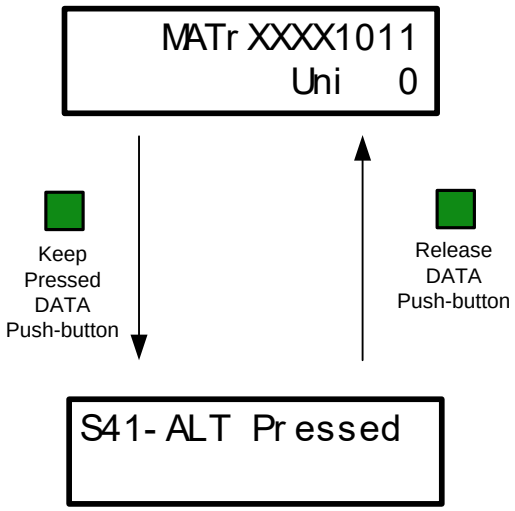
3.2.5 Alarm Mode

When a fault occurs, in the field of the display reserved to the state code will be visualized the string 'ERR' (ERROR) and in the next number is show the error code. For a complete description of the Alarm Mode management and of alarm codes' meaning refer to chapter 1.
Pressing the DATA and SPEEDY push buttons simultaneously you can read a brief description of the meaning of the fault. The description of the fault is on two pages that are rotated and the bottom of the second page shows a two-digit number representing the time in hours elapsed since the previous failure.
In the figure below are shows some example display's screen when an alarm occurs.



3.2.6 Input State Check

It is possibile to visualize on the display a state code with a short description of its meaning. This code shows if a particular signal or function is active. Ref Paragraph 1.6.
To visualize the state code it is necessari to push, in Running Mode or in Inspection Mode, the DATA push button.



3.3PROGRAMMING WRITING PROTECTION THROUGH PASSWORD

It's possibile to set up a password through a supervision software, which enables to protect programming parameters from writing.In order to be input through a push-button of the keypad DISP900, the password must only have numbers, otherwise it is possible to unlock it by supervision software.
In order to block all programming parameters, you must set a password made up of 5 figures (ex.0123) through the supervision software.
Once the password is set, it is possible to input it through push-button of the keypad DISP900 in the proper parameters (ind. 47-48-49).
For instance, if the previus password corresponds to 0123, you must program address 49 to "01" and address 48 to "23".

Block of all parameters (4 digits)		
Address	49	48
Value	01	23

Everytime you go back to programming, the password will be required.
By setting a password made up of 6 figures it is possible ti protect only those parameters related to the counting of the hours for six-monthly check (address 47-48-49).
If you wont blocking only Address 47,48 and 49 ,you must set a password by supervision software (ex 012345).
To unlock these Address by push-button of the keypad DISP900 you must set up the access code in the proper parameters.
For instance if the previus password corrisponds to 012345, you must program Address 49 to "01, address 48 to "23" and address 47 to "45".

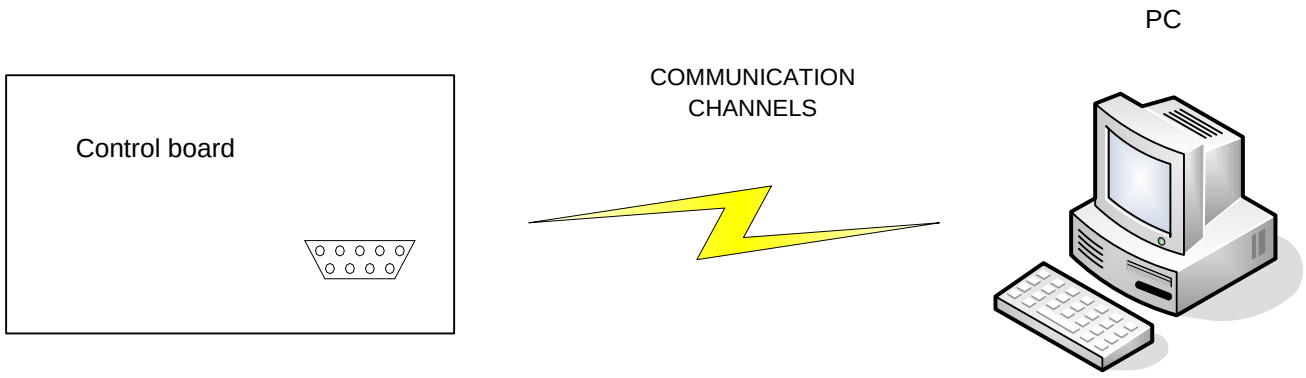
Block only the parameter 47-48-49 (6 digits)			
Indirizzo	49	48	47
Valore	01	23	45

Fault 57 means that the password is wrong.
Setting a blank space " " as a new password by supervision software, the password is deactivated.

PASSWORD	DESCRIPTION
" " BLANK SPACE	PASSWORD DEACTIVATED
Numeric (4 figures)	Block all parameters, it is possibile unlock from the push button of the keypad DISP900.
Numeric (6 figures)	Block some parameters, it is possibile unlock from the push button of the keypad DISP900.
"0000" or "000000"	Block only the supervision, it is unlock from the control board.
Alphanumeric	Block only the supervision.

3.4PROGRAMMING BY PC

For programming the memory, in alternative to procedure described at the paragraph 3.2.3, it's possible use a Personal Computer, with the proper supervision software. It's can also monotoring all Inputs and outputs of the control board.

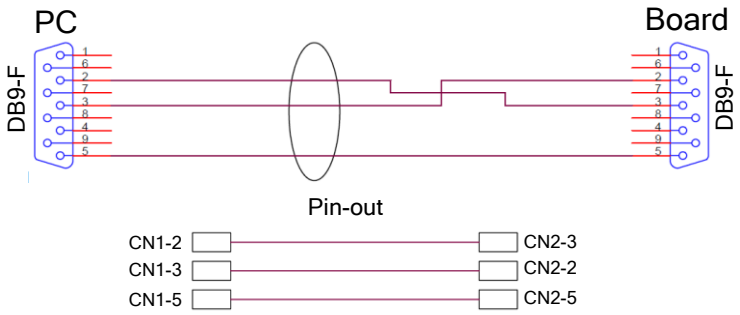


This system is capable of performing the following steps:

- Reading and programming the memory of the control panel (Times, Functions and Parameters);
- Reading and programming the memory of the control panel (Times, Functions and Parameters);
- Consultation of the last 32 faults reported by the control board;
- Removal of the faults reported in the control board;
- Real-time visualization of the state of all inputs and outputs;
- Real-time graphical representation of the car and the elevator shaft
- Making calls remotely
- Implementation of the 'manual release' plant in case of permanent damage (after resolving the cause of the blockage)

The control board is able to handle different types of connection to the PC and then different types of communication channels:

- Local connection: in this case you will not need to use any modem but the connection between the control board and the PC can be done with a special 3-wire cable that connects to a PC COM port with 9-pin connector on the card control. Code: CB_VG0056_01 (2mt.)



- Connection via GSM modem: if the remote connection, if you do not have access to a telephone line you can use a GSM modem connected to the 9-pin connector on the control card via cable. (See brochure supervision)

For more information you can see the user manual of supervision software.

Note:
If you use the monitoring software for the PC to the previous version V.4.3.0, set +16 at address 90 of the control board.

4. CONTROL BOARD CHARACTERISTICS

4.1 GENERAL CHARACTERISTICS

- **Dimensions:** 150 x 255 mm
- **Weigh**: 400 g.
- **Control board's software**: SW is contained into a removable and reprogrammable microprocessor with FLASH technology.
- **Setting plant's parameters and faults list**: board totally programmable by a removable display (DISP900) or via Computer both in local or remote mode (with a modem board). Parameters are stored thanks to EEPROM and so the control board doesn't lose its programming even when there is a power off.
- **Compliance with safety's circuits rules**: the board is compliance with UNI EN 81-1/2 Standard currently in force.

4.2 ELECTRIC CHARACTERISTICS

4.2.1 Power Supplies

- **Power supply:** Provide a continuous voltage at connectors **GND** and **CL** obtained rectifying an alternate voltage in the range that goes from 13Vac ± 10% to 25Vac ± 10%.
- **Power supply with battery:** at the connector **BAT** has to be connected at the battery of 12V to keep enable the alarm and emergency's functions even if power supply turn off. Ref. Paragraph 6.3
- **Output power supply for subordinate boards and emergency devices:** from connector VIM which supplys a voltage of 13.5 Vdc stablized and backed up with battery and a maximum current of 2A.
- **Voltage reference point**:
  - **GND** is the zero reference for the board and the other external devices (lights, relais, subordinate boards...Except safety circuits.
  - **OM** is the zero reference for the working voltage and safety circuits;
  - **AL-** is the zero reference for alarm circuit. After insulation tests, these connectors are to be connected together and placed at ground.
- **Temperature range:** from 0°C to +50°C
- **Safety's Voltage:** 24Vdc to 110Vac (OPTIONAL: up to 230Vac.)

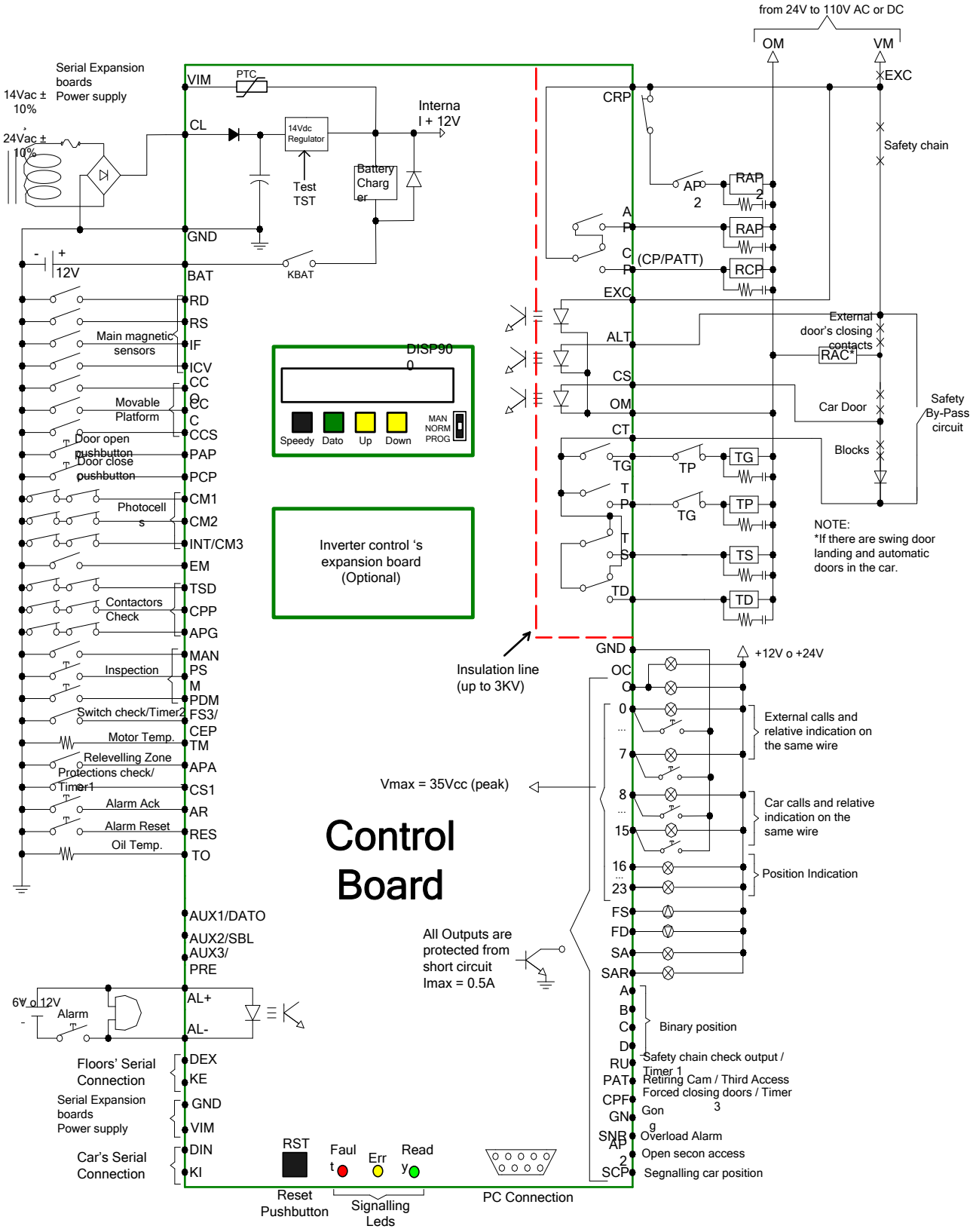
4.2.2 Inputs

All **inputs**, except that's for checking on safety's chains (optoisolated), must be connected towards the GND. They are not damaged by voltages less than 24V. All inputs have LED signalling.

4.2.3 Outputs

All transistor outputs close towards GND devices connected at 12 or 24 Vdc. The outputs take a maximum current of 0.5A and are protected from short-circuit.
The outputs for run contactors, for doors relays, for the OCC and the CE signals are relays contact which can take 5A max.

4.3 ELECTRICAL DRAWING



5. WIRINGS DESCRIPTION

5.10 – 23

Programmable Inputs/Outputs (multiplexed). Ref paragraph 2.5.

5.2A/B/C/D

Outputs for binary coded position/binary inverted code/Gray code. Vedere paragrafo 8.1.

5.3AL-/ AL+/ AR/ RES/ SA/ SAR

- **AL- :** Not used;
- **AL+:** Not used;
- **AR:** Not used
- **RES:** Reset control board
- **SA:** Not used
- **SAR:** Output for out of service

NOTE if at address 49 is programmed a value > 90, SAR output is activated when expires the time for the six-monthly check (4300 hours).**Set the address 47=90 or 99 for diseble this function.**

5.4 ALT

It is the input to control ALT signal

- When it is activated (ALT Open):
  - breakdowns on safety chains;
  - car stops, calls and reservations are cancelled(internal and landing ones);
  - door closing is halted;
  - relevelling is disabled;
- When it is deactivated (ALT Closed):
  - if car is next to door opening zone, the doors will be opened;
  - if car isn't next to door opening zone, car will keep up doors closed;

This signal may be used to control semiautomatic doors' approach in hydraulic plant instead of PAP signal.

5.5 AP/CP/CRP

Relays' contacts of door

- AP: output for doors opening (only for first entrance in the case of multi-entrances plants);
- CP: output for doors closing ;
- CRP: doors'relays common input; it can be wired after ALT signal or before the safety circuit

However, door closing control and beginning door opening are activated only if ALT signal is active.

5.6 AP2

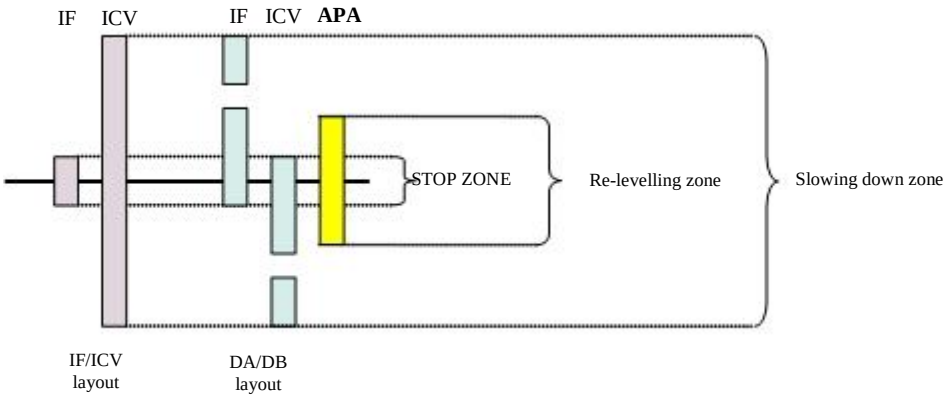
Output signals for the opening of second entrances in multi-access plant. Ref. Paragraph 6.13.6.
If the second access is not enabled (programming '1' or '3' at address 0) AP2 output is active when the inspection mode is active.
If there isn't the second entrance (programming '1' or '3' at address 0), in **hydraulic plant,** with "man-present" mode enabled, the A2 output is activated to enable landing calls, that is when car is not occupied or a landing call is active. For example, wiring this output (AP2) to INT input signal, this functionality could be used in order to obtain car calls in 'man-present' mode and landing calls in single automatic mode.

5.7 APA

This input signal defines 3 different zones:

- Enabled door opening zone. Ref paragraph 7.7
- Relevelling zone (hydraulic plant only). Ref paragraph 9.1
- Pre-opening door zone. Ref paragraph 6.1

programming at address 62, the value '+8' which enables this input signal control (only with DA-DB magnetic sensors).
In order to enable pre-opening door, it is necessary to program parameter at address 19 with a values >= '70' and at add. 62 with a '+16' (now it is possible only in hydraulic plant).



5.8APG

Input signal controls high speed's contactor (TG) and door opening relay (AP).

It has to be **closed** to **GND**:

- When car runs at slow speed, otherwise the elevator is stopped, and **fault '64'** is signalled.
- When car is stopped, otherwise **fault '44'** is signalled.

It has to be opened:

- When car runs at high speed, that is when control board activates TG signal, otherwise lift is stopped signalling **fault '65'**.
- When control board commands door opening otherwise **fault '55'** is signalled.

5.9AUX1/AUX2/AUX3

Reserved inputs.

5.10 BAT

It is the input to connect a 12V battery to keep enable the alarm and emergency's functions even if power supply switches off. Ref. Paragraph 6.3

5.11 CCO /CCC/ CCS

Inputs for the checking movable platform: busy car contact (CCO), car full load contact (CCC) and car overload contact (CCS).
CCS input is activated when this contact is opened if a '+32' is programmed at address 62. Ref. Paragraph 7.5
CCS signal with MAN signal, is employed to activate "manual rescue operation", Ref. Paragraph 9.6.1

5.12 CL

Is the input for the positive pole of the power supply voltage of the control board. Ref. Paragraph 4.2.

5.13 KE/ KI/ DEX/DIN

Serial expansion board wiring connectors.

- DIN/KI: data and clock for car serial board expansion communication (SERCAR, VEG0400, SERCAR_LCD…).
- DEX/KE: data and clock for landing serial board expansion communication (FLOORDIS, VEG0400, VEG0700, VEG800...)

Ref. Chapter 10

5.14 CM1/CM2

Door Photodetector input signals for each entrance (entrance 1,and 2); Ref. paragraph 6.7

5.14.1 CM1

If the plant has manual doors and it is in 'man-present' mode CM1 signal works as the ALT signal:

- It stops the car
- It cancels the current call
- It keeps the car busy

To have the same kind of working in single call mode too, you have to program the "Man Present Mode" instead of the "Single Call Mode" and connect the INT input to GND. Ref. paragraph 5.27.

5.15 CPF

Multifunctional output:

- **TMR3**
  CPF may be an output signal of a general purpose timer (TMR3, add.29), together with FS3 input signal. This timer (CHF add. 29) may be set to a value between '0' and '95' tenth of second.

- **High speed**
  Programming a value >= '97' at address 29 (CHF parameter), the CPF output signal drive the high speed (V2P). High speed is the velocity of a run through 2 or more floors. This signal is activated when distance is higher then an interfloor distance and the elevator is not in synchronizing or inspection mode. For the slowing down action refer to 'programmable times' table.
- **Firefighters service mode**
  Programming the CHF time (add. 29) at a value= '96', the CPF output is used to enable forced closing and ringing. Ref. paragraph 9.8.2
- **Signal of out of service**
  Programming the CHF time (add.29) at a value='95', the CPF output is used for the signal of out of service.It's active when the plant is in block, in maintainance and in programming.

5.16 CPP

It is an input signal that controls slow speed contactor (TP) and door closing relay (CP).

It must be closed to GND:
- when there isn't door closing command, otherwise **fault '46'** is signalled.

It has to be opened:
- when car runs at slow speed, that is when lift control board activates TP signal, otherwise the elevator blocks with **fault '53'**;
- during door closing operation and when there is no sighnal on CS input, otherwise **fault '54'** is generated. This type of control can be deactivated programming '0' or '32' at address 10, and, in this case, it is not necessary to connect a contact of the door closing relay in series to the CPP input.

In Hydraulic plant if **TST (add. 25)** is programmed with an **odd value < 70** CPP input is checked before the activation of TS contactor.

5.17 CS

This signal has to be wired after door's contacts. When manoeuvre voltage is present, doors are certainly closed and so lift control board can activate run contactor.
If this connector keep opened for a time longer than the non-starting time (TMP, add. 21) since the door closing started, lift control board:

- signals the blinked current car position (**fault '0'-'31'**);
- opens the doors;
- cancels all reserved calls;

This procedure is followed also when car stop out of landing, with exception of door opening.
If non-starting car happens during synchronizing operation, **fault '45'** is signalled.
Anyway, It is possible try again pressing any call button.

5.18 CS1

Multifunctional input:

- **TMR1**
  CS1 may be an input signal of a general purpose timer (TMR1), together with RU output signal. This timer may be set to a value between '0' and '98' tenth of second.

- **Safety circuit's control**
  CS1 can be input for safety circuit's control not programming '+4' at address '62' (in this way the general purpose timer TMR1 is not available). When this control is activated and CS1 is opened, relevelling is disabled. Ref. paragraph 7.1

- **Unlocking brake's control**
  In rope plant, if TMR1 (address 31) is set to the value '99', the unlocking brake's check is enabled. In fact CS1 is active (closed) when brake is unlocked.
  During halt operation, contactors go off after a programmable time at address 26 (TRIF) from CS1 opening.

5.19 CT

Contactors' common (D, S, P, G). Must be wired to the safety chain end. If it keep opened, TS and TD contactors cannot be activated.

5.20 EM

Input for emergency service activation, that is when there is a power cut.
In Normal mode EM input must be closed to prevent plant blocking with **fault '81'**. Ref. paragraph 9.2

5.21 EXC

Overrun control input. Must be wired at the beginning of safety chain, preceded only by overrun sensors.
If this contact opens, plant blocks permanently with **fault '81'** only if emergency or inspection services are not active.
The following situations can happen:

- If **immediate blocking** is programmed ('4' or '12' at add. 5): plant blocks promptly with fault **'81'** and car keeps stopped even if EXC contact closes in the meantime.
- If blocking after the automatic landing 0 reaching is programmed ('0' and or '8' at add. 5):
  - **Hydraulic plant**: if the car halts at landing different from floor 0, If runs to reach landing 0 (if EXC closes in the meantime) and then it keeps blocked with **fault '81'**.
  - **Traction/rope plant**: the system is blocked immediately with **fault '81'** and the car keeps blocked until EXC closing (not permanently halt).

5.22 FD/FS

Outputs that command the signalling of up/down run direction or next run direction (up/down arrows).

5.23 FS3

Multifunctional input:

- **TMR3**
  FS3 may be the input signal of a general purpose timer together with CPF output signal. This timer (CHF add.29) may be set to a value between '0' and '95' tenth of second. Ref. paragraph 6.15
- **Firefighters service mode (EN81 – 72 – July 2003) only for firefighters lifts**
  Setting CHF (address '29') at the '96' value:
  - Forced closing and alarm horn are activated on **CPF** output.
  - FS3 is used like **Phase 1** (Ref. paragraph 9.8.2) activation command: 'priority recall for the firefighters lift'.
  - FS3 + INT are used like **Phase 2** (Ref. paragraph 9.8.2) activation commands: 'use of the lift under firefighters control'.
  - Check of the second key in car with CM3 (INT).
- **Fire service mode**
  Setting CHF (address **29**) at the '**97**' or '**98**' value, FS3 is set like input to allow FIRE SERVICE MODE. When the signal is activated, the current active call is completed, then all reservations are cancelled and a call to the NPM floor is activated (add. 39). Ref. paragraph 9.8.1.
- **An important contact's control**
  Contact wired to FS3 connector has to change at least one time during a complete run from the lower (RD sensor) to the upper (RS sensor) landing. In order to activate the switching control, it is necessary program the CHF time (addr **29**) at the '**99**' value. If the switching not occurs fault '57' is generated. This fault is excluded in emergency mode or if phasing sensors (RS or RD) are out of order.

5.24 GND

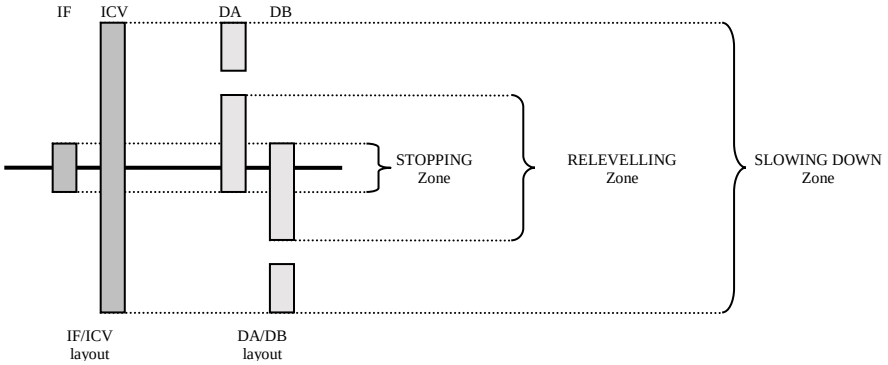
This input is the reference electric potential (Zero voltage) for the power supply and for the signalling lights. It is physically separated from OM to simplify the insulation test.

5.25 GN

GONG impulse output signal. Ref. paragraph 6.8

5.26 ICV/IF

Input signals of stopping and speed change/landing counter sensors.
They are active when they are opened or closed in function of parameter's value at address **15 ('0' - opened at landing, '64'- closed at landing**). At address 14 can be selected the placement layout (DA/DB or IF/ICV) of the magnetic sensors (value '0' or '16' for DA/DB layout, value '32' or '48' for IF/ICV). Ref. paragraph 6.5
Their arrangement in the hoistway is shown in the figure below:



5.27 INT

Input for the control of "Jnternal mode" (ref paragraph 9.4) or for the safety reopening systems/photodetector of the third entrance (if the third entrance is enabled programming address 3 with value 64). Ref paragraph 6.7.

If the third entrance is disable (programming '0' at address 3), INT signal enables different functions depending from the type of connection and the programming of the "Man Present" mode (address 63):

- If "man-present" service is activated:
  - If **INT** is **always closed to GND**: car and landing calls are managed like single call plant's ones.
  - If **INT is closed to GND when car is not busy**: car calls are served like "man-present" service's ones and landing calls are served like single call plant's ones. In order INT input is closed to GND when car is not reserved, it is possible to wire this connector to:
    - A presence in car sensor (car busy sensor);
    - A car call push buttons circuit properly configured
    - AP2 output, that, in this condition, is active (closed to GND) when plant is not reserved or when a landing call is active.
  - **If INT is always opened**: car and landing calls are managed like "man-present" service's one.

If "Man Present" service is not enabled and the third access is not enabled too, INT is the "**Internal Mode"** activation input. INT activation deletes landing calls, keeps car busy with open door and only one internal call at time is served.

5.28 MAN

Input for the Inspection mode activation. Normally the Inspection mode is enabled closing this input to GND but it is programmable active opened (normally closed) setting value '+1' at **address 62**. Ref. paragraph 9.6

5.29 OCC

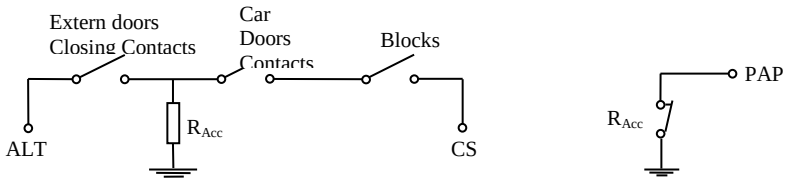
Output for the 'reserved' car signalling's lights (used in single call systems only). Ref. paragraph 8.5

5.30 OM

Zero voltage (reference voltage) of car manoeuvre voltage. Ref paragraph 4.2.1

5.31 PAP

Door opening or call cancellation push button input signal. Door opening is enabled if the car is still in the door zone and if run has not yet begun. It is enabled in Inspection mode too if CS contact is opened.
In hydraulic plant with semiautomatic doors, in order to guarantee car relevelling, use PAP connector to check the external doors closing contact instead of ALT connector (wiring is shown in the picture).
If the door closing relay R_{Acc} is deactivated, PAP contact is closed and door are kept opened, otherwise PAP is opened.
For PAP input there are two distinct rebound times: the rebound time for the activation of the input and the rebound time for the deactivation of the input. The activaqtion rebound time is programmable at address 46 (LETT parameter). The deactivation rebound time has a fixed value of 1 second. This function is useful when the PAP input is used to monitor the external doors' closing contact.
In collective calls systems, if this input remains active for a time longer than 3 seconds, all car reservations are cancelled.



- **Increased Waiting for loading / unloading goods in the cabin.**

Activating this function by programming at 64 the value "+16", you can "lock" the cabin for load / unload goods:

To enable this function should not be active car reservations.
-The plant remains busy with open doors;
-The external calls are deleted.
-The plant indicates the status of full load (if enabled)
-In The case of multiplex systems (duplex, triplex) the system is disabled (as if it were out of service).

ACTIVATION

This function is activated by holding down the button for 5 seconds or PAP. It is connected in serial or in parallel.
On the display (external) are active the double arrow (UP and Down).

DEACTIVATION

When a call cabin;
• automatically after the programmed time at 27 TSN (from 10 to 990 seconds: 01=10sec.; 02=20sec……10=100Sec…..)

5.32 PAT

It is the output signal for the retiring cam. This input is active at the run beginning (for call or Inspection starting). It enables the locks of external door, even if the car door is still opened. This output is deactivated in stopping zone.

5.33 PCP

Input for the door closing push button. When Pressing this button (or any other car call button) the waiting time with door opened is resetted, doors close immediately and car starts.
Programming an odd value at the add. 30 (RIP), PCP can be used even like SAP function (opening exclusion to test the system). Ref. paragraph 6.12.2
In the follow situations PCP input is able to activate FIRE SERVICE MODE:

- The Fire Service Mode is activated (that is at add. 39 (NPM) is programmed a value < '32').
- Is not used the FS3 input to activate this operation (fire service mode).

5.34 PDM/PSM

Input signals for up and down direction push button (in Inspection Mode), placed above the car. Ref. paragraph 9.6

5.35 RD/RS

Input signals for lower and upper landing syncronising sensors. They are active when they are OPENED.

Placed only at extreme floors and some centimeters after the ICV sensors (that marks the slowing down zone).

RD sensor must to be placed at the lowest landing and RS at the highest one.

These sensors' malfunctioning is shown with the following fault code:

- **fault '41'**: if both sensors are opened. This check is done at all times and in any car position.
- **fault '54'**: if car reaches the upper landing and RS is closed, lift ends the stopping and it will automatic go to the lower floor. the next time the car reaches the upper landing, if RS sensor is still closed, the system is blocked .
- **fault '55'**: when occurs the same situation of fault '54' but referred to the RD sensor. This means that RD sensor is always closed and car reaches lower landing.

These sensors are also used for the run direction checking. Ref. paragraph 7.4

5.36 RU

Multifunction output signal:

- **TMR1**
  RU may work as output signal for TMR1 (at add. 31), together with CS1 input signal. This timer (L13 add. 31) may be set to a value between '0' and '95' tenth of second. Ref. paragraph 6.15.

- **Enabling relevelling command**
  With DA/DB magnetic sensors' layout, RU is used as relevelling enable command, programming L13 Timer at value '96' or without programming '+4' at the add. 62.
- Programming the value '97' at address 31, the RU output reports the presence of the IF signal or ICV signal. This function can be used to activate one of the safety circuit's channel that enables the relevelling operation in the door's zone. Ref. Paragraph 9.1

- **Activation of the safety circuit**
  Both in hydraulic and rope systems the RU output can be used to activate the safety circuit. Programming the value '98' at address 31 The RU output is activated in the door's opening zone if the input APA is active (adding '+8' at address 62), otherwise is actifivated when the stop zone is reached. Can be enabled the check of the safety circuit on CS1 input adding the value '+4' at address 62.

- **Inverter motion's activation command**
  RU is used as inverter speed benchmark's activation command, programming L13 timer (add. 31) at the value '99'. This output is activated at the starting after break opening (checked by CS1 input) and is deactivated promptly when

the car enters in stop zone. Motor contactors deactivation is delayed of TRIF time after CS1 input deactivation. Ref. paragraph 6.17

5.37 SCP

Output signals for the "Car at Floor Signalling" or for the opening signal of the third entrances in multi-access plant. Ref. Paragraph 6.12.6.

If there isn't the third entrance, programming '0' at the address '3', **SCP** output does the **car at landing signalling** both in **rope and in hydraulic plant** and even with 'Man Present' mode enabled, This output is activated at every floors in the stop zone indipendently from floors count inputs' setting, from wiring kind (parallel or serial) and from stop delay (TRIF) value. In **rope plant** can be used as inverter stop control but PAY ATTENTION to enable the signal only at arrival landing.

In the event that the number of floor (ind. 32) is> 16 the output "SCP" is used for binary code.

5.38 SNR

Alarm sound's output signal. SNR is activated in these three situations:

- when car is overloaded (CCS is active) for 2 seconds;
- at the end of emergency service mode (when car is stopped and reserved in door opening zone and ALT signal is active with maintenance service mode deactivated);
- impulsive sound when a car call button is pressed ("Beep" if '2' or '3' is programmed at address 0).

5.39 TD/TS

Output signals that command down direction (TD) and up direction (TS) run contactors.

5.40 TG

High speed output signal (TG relay).

5.40.1 TG Delay

In hydraulic systems is possible to have a delay time of high speed introduction. This delay time is programmable in tenth of seconds at the address 25 (TST). It is necessary programming a value between '70' and '99' and the delay value is obtained subtracting to that value '70' (delay = TST – 70) tenth of seconds).
E.g. program TST = 83 for a 13 tenth of seconds ' delay (83 – 70 = 13 tenth of seconds).
Program '70' at address 10 to avoid TG delay.

5.41 TM

Input signal of thermistor that measures temperature engine. Ref. paragraph 7.6

5.42 TO

Input for the thermoresistance that measures the oil temperature.
This contros is active don't programming the value"+2" at address 62.
If analogic value in input is higher than wanted limit (resistance thermometry > 4K Ω), with **'70' fault**. Unlocking is possible only if TO input measures a resistance thermometry < 1,5K Ω

NOTE: The fault is gerenated only at floor.

5.43 TP

Output for the Slow speed signal (TP relay).
The TP output has many actions depending on the value programmed at address 25 (TST) and on the system type.

	TST = from 0 to 69	**TST = from 70 to 99**
Traction/Rope system	TP = slow speed output signal	TP always ON
Hydraulic system	TP = star / delta starting	TP always ON and TG delayed of (TST – 70) tenth of seconds

5.43.1 TP Delay

In Rope Systems it is possibile to delay the deactivation of the TP relay compared to the activation of TS and TD relays. This delay time (tenths of a second) is programmable at address 25 (TST). It is necessary programming a value between '70' and '99' and the delay value is obtained subtracting to that value '70' (delay = (TST – 70) tenth of seconds). E.g. program TST = 83 for a 13 tenth of seconds ' delay (83 – 70 = 13 tenth of seconds).

This feature can be used to manage the soft stop on the inverter by connecting TP on contactors and TS and TD on the commands for the inverter. With this type of operation you can perform a soft stop outside the plan too (useful for soft stop on electric platform lifts with 'Man Present' Mode or for soft stop in Inspection Mode.
Ref Paragraph 9.3.1

5.44 TSD

It is the input for the check of up and down direction run's contactors.

- **It has to be closed to GND when system is idle**, otherwise **fault '47'** is signalled.

- **It has to be open when lift is moving**. If this contact doesn't open when control board activate TS or TD, **are** generated **fault '52'** for TS and **fault '51'** for TD, call is cancelled and system keeps reserved. That happens also if TSD closes when the car is running.

5.45 VIM

This output supplies a 13,5Vdc voltage backed up with battery that can be used to power other external boards which have to be powered from battery in absence of main power supply (max 1A) .

5.46 LED SIGNALLING

All the most important inputs have a led that indicates if the corresponding I/O is active (LED light ON) or inactive (LED light OFF).
There are also four LEDS that signal some particular states of the control board:

- Led 'PWR'.
- Led 'Fault'
- Led 'Err'
- Led 'Ready'

5.46.1 Led PWR

It is a GREEN LED that signals the presence of power supply on the control board. It lights up when the control board receives the power supply voltage.

5.46.2 Led Fault

It is a RED LED that signals the presence of a fault condition that blocks the system. It remains on until there is a fault condition.

5.46.3 Led Err

It is a YELLOW LED that indicates if there are faults memorized in the fault record. In normal conditions the led is off and it lights up when there are faults in memory. The yellow LED flashing indicates the presence of a fault stored in the memory that has not been read yet.

5.46.4 Led Ready

It is a GREEN LED that indicates the state of the control board's microprocessor. It lights up when the microprocessor has finished the start-up phase and is ready. The start-up phase is four seconds long but this time can be extended to ten seconds adding the value '+64' at address 62.

6. WIRING DESCRIPTION (ONLY SERIAL SIGNAL)

6.1CCO/CCC

CCO is the input for the 'movable platform contact:
CCC is the input for the 'full load' contact è programmabile attivo aperto programmando '+32' all'indirizzo 62.
Ref. paragraph 9.5

6.2FD/FS

Outputs that command the signalling of up/down run direction or next run direction (up/down arrows).

6.3GONG

GONG impulse output signal.

6.4SNR

Alarm sound's output signal. SNR is activated in these three situations:

- when car is overloaded (CCS is active) for 2 seconds;
- at the end of emergency service mode (when car is stopped and reserved in door opening zone and ALT signal is active with maintenance service mode deactivated);
- impulsive sound when a car call button is pressed ("Beep" if '2' or '3' is programmed at address 0).

6.5DPA

Output which signals fault presence or disables alarm push button.
To enable the fault presence signalling do not program at the add. 3=0.
Available only in the mapping 1.
During this operation, alarm push button is enabled (DIF output is not activated) in the following cases:

- If plant is Out of service (inspection mode, programming mode, etc…);
- If plant is blocked;
- If a fault is activated;
- If there is not an active call and the doors are closed or if the car is over the stop zone.

6.6FS

Out of service output signal. FSER is active in the following situations:

- Plant blocked;
- During inspection service mode;
- During the programming procedure (preset).

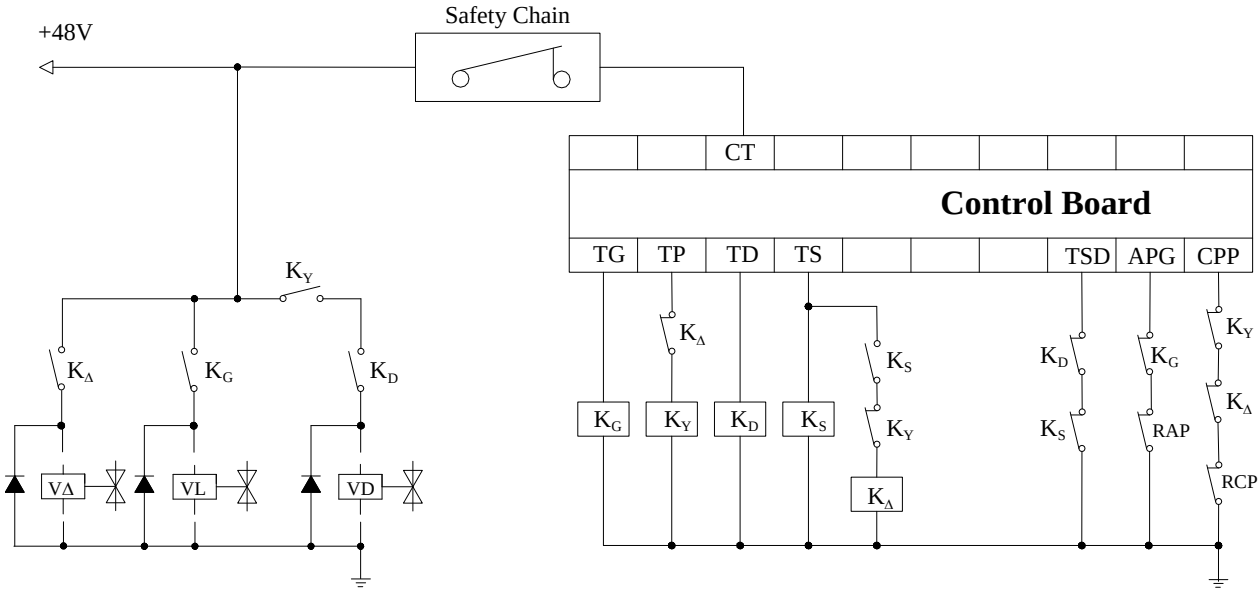
7. ARCHITECT SYSTEM'S SPECIFICATION

7.1 DOOR PRE-OPENING

It possible in hydraulic systems only. It is necessary to **enable APA input signal control** (programming '**+8**' at **add. 62**).
In order to **enable door pre-opening**, it is necessary to **program parameter TRA (add.19)** with **value >= '70'** and **parameter 62** with value '+**16**'.
This input (APA), if closed in the re-levelling zone will enable the doors opening.
The safety circuit by-passes the door's contacts to allow the car moving up to the landing stop.

7.2 STARTING Y/Δ

To enable this function, in hydraulic plant, it is necessary to program a value > '**1**' and < '**69**' at address **25** (**TST**).
Ùin the figure below shows a possible contactor's connection scheme for Y/Δ starting:



During the climbing starting, these following steps occur:

1. TP signal's activation for STAR power supply → it enables K_y activaction (the contactor for STAR power supply).
2. TS signal's activation → it enables K_S activaction (the up direction contactor) for engine power supply (STAR STARTING).
3. TP signal's disactivation after TST time and consequent activation of K_Δ (contactor for DELTA power supply).

NOTE: when car runs in down direction, TP keeps active and is used as an auxiliar contact for down direction. Futhermore, programming this timer (TST) to an odd value, it is enabled CPP control before TS activation.
Remember: it used a starting valve to disconnect the load at the starting.

7.3 BATTERY

Battery supplies power to the lift control board, serial expansion boards and safety circuit to enable alarm and emergency manoeuvres. When electric network is on, the elevator control board charges the battery with its internal battery charge.
At address 28 (SBA time) you can decide how long the battery must back up the main power supply when this one goes down. SBA time may be set to a value between '**0' and '98'** minutes. Programming at addr.28 the value '99' the battery will back up the power supply for an indeterminate time (until battery discharge).
If battery is connected to BAT connector, EM must be kept close during power outage in order to avoid **fault '81'** code message for overrun.
If control board turns off, it is not possible turn on again the board through the battery because the battery is excluded for the first 4 seconds (during start-up phase) after the power supply's switching on.

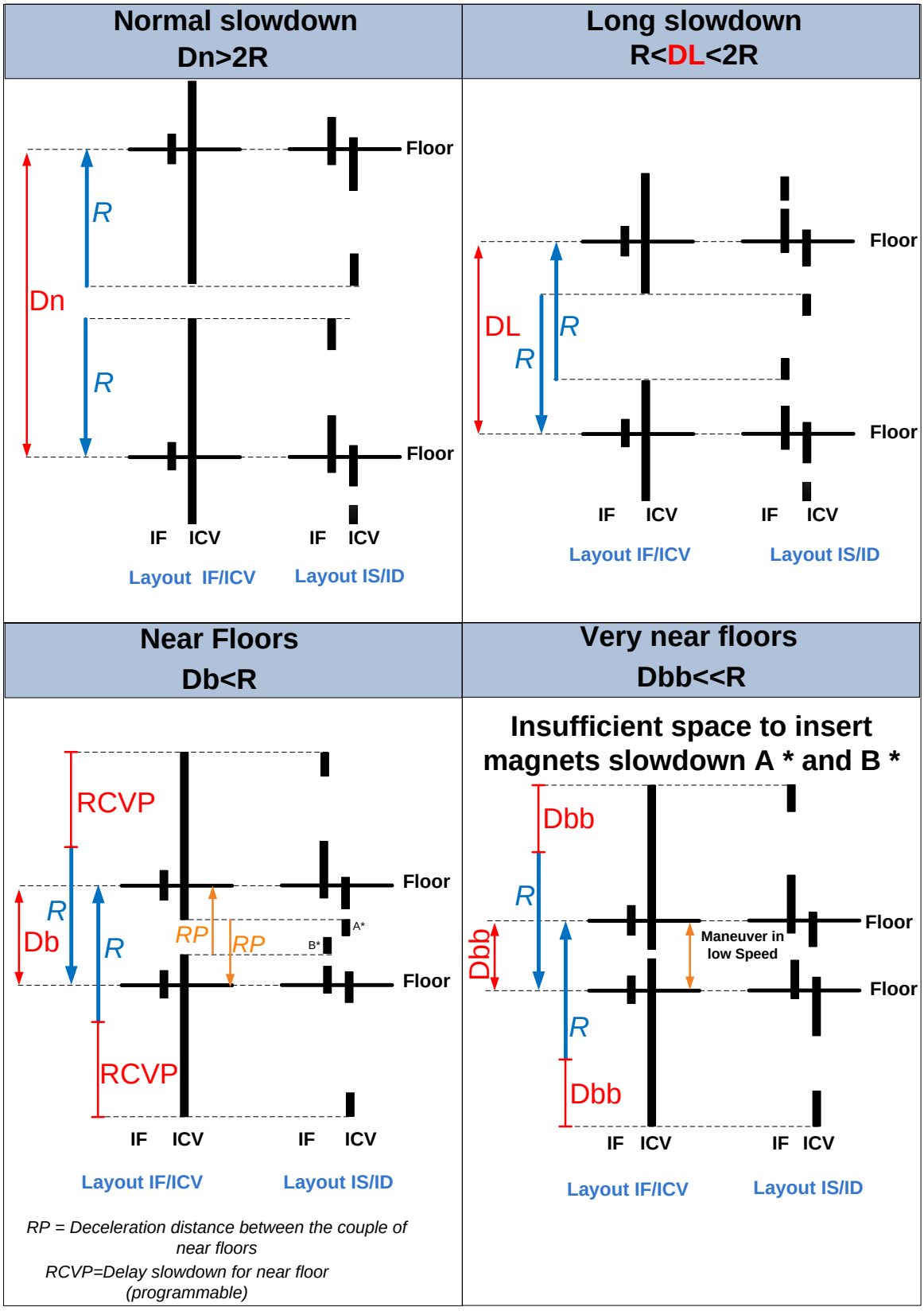
7.4SERIAL OR PARALLEL WIRING

The communication from control panel (control board) to car and with each floor can be carried out through:

- **parallel wiring**
  Wires are connected to each control board connectors (connectors 0-23); so is used 1 wire for each signal. Ref. paragraph 2.5
- **serial wiring** (programming '**64**' at add. **11**)
  Inputs and outputs are sent to the control board and turn into serial inputs and outputs thanks to car serial expansion boards (SERCAR_LCD...) or landing serial expansion boards (VEG0600, VEG0700, FLOORDIS_01..). Ref. chapter 10.

NOTE: mixed wiring is possible (e.g. a serial display can be connected to a parallel system)

7.5 LANDING AND SLOWING DOWN ZONE 'S MAGNETIC SENSORS LAYOUT



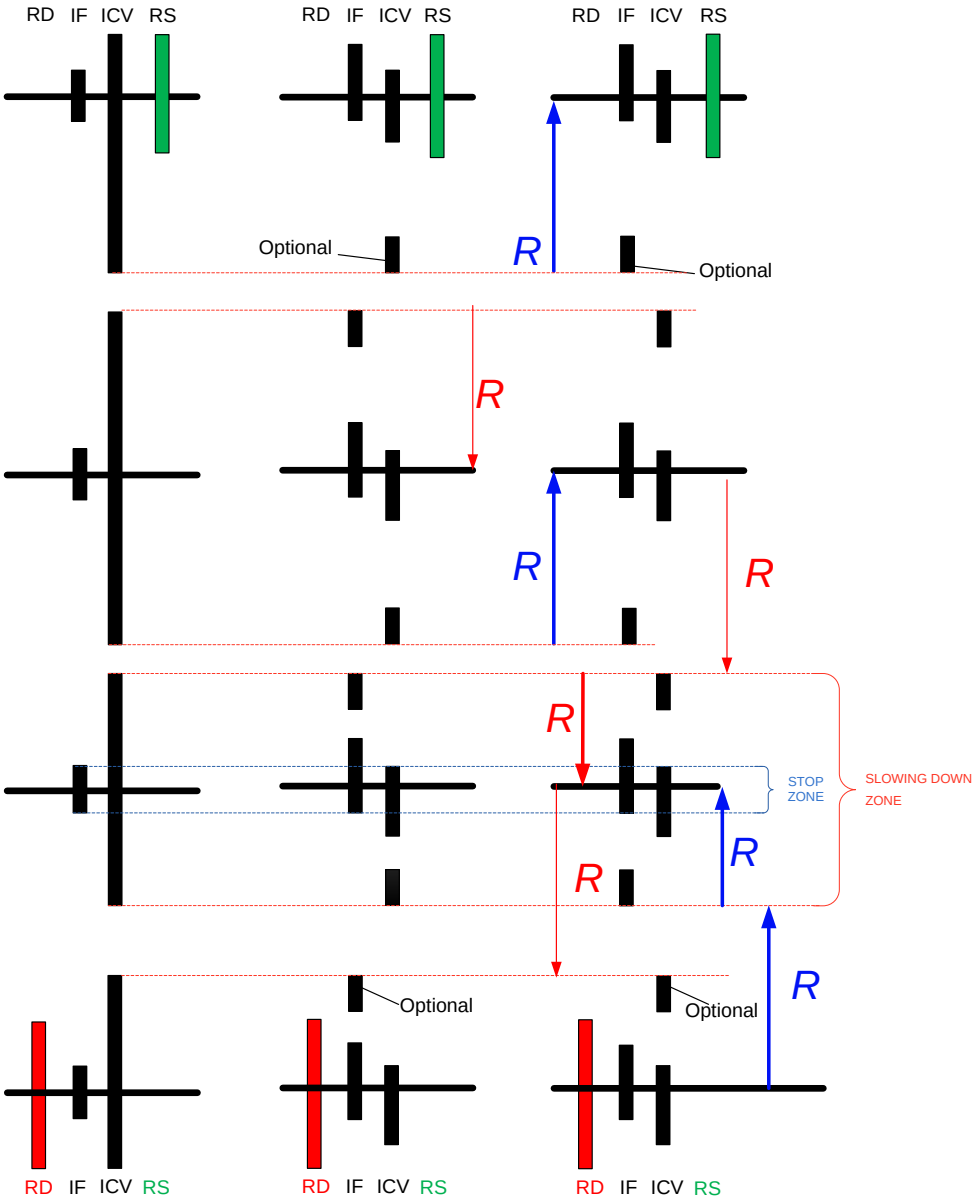
LEGEND:
R: Deceleration distance;
Dn: Distance between two floors with normal slowing down;
DL: Distance between two floors with long slowing down;;
Db: Distance between two near floors;
Dbb: Distance between two near floors.

NORMAL SLOW-DOWN (D>2R)

The control board is able to manage three different magnetic sensor layouts:

- ***IS/ID LAYOUT (STANDARD);***
- *IS/ID reverse sensor layout;*
- *IF/ICV Layout.*

(A) ICV\IF LAYOUT	(B) IS/ID LAYOUT	(C) IS/ID reverse sensor layout

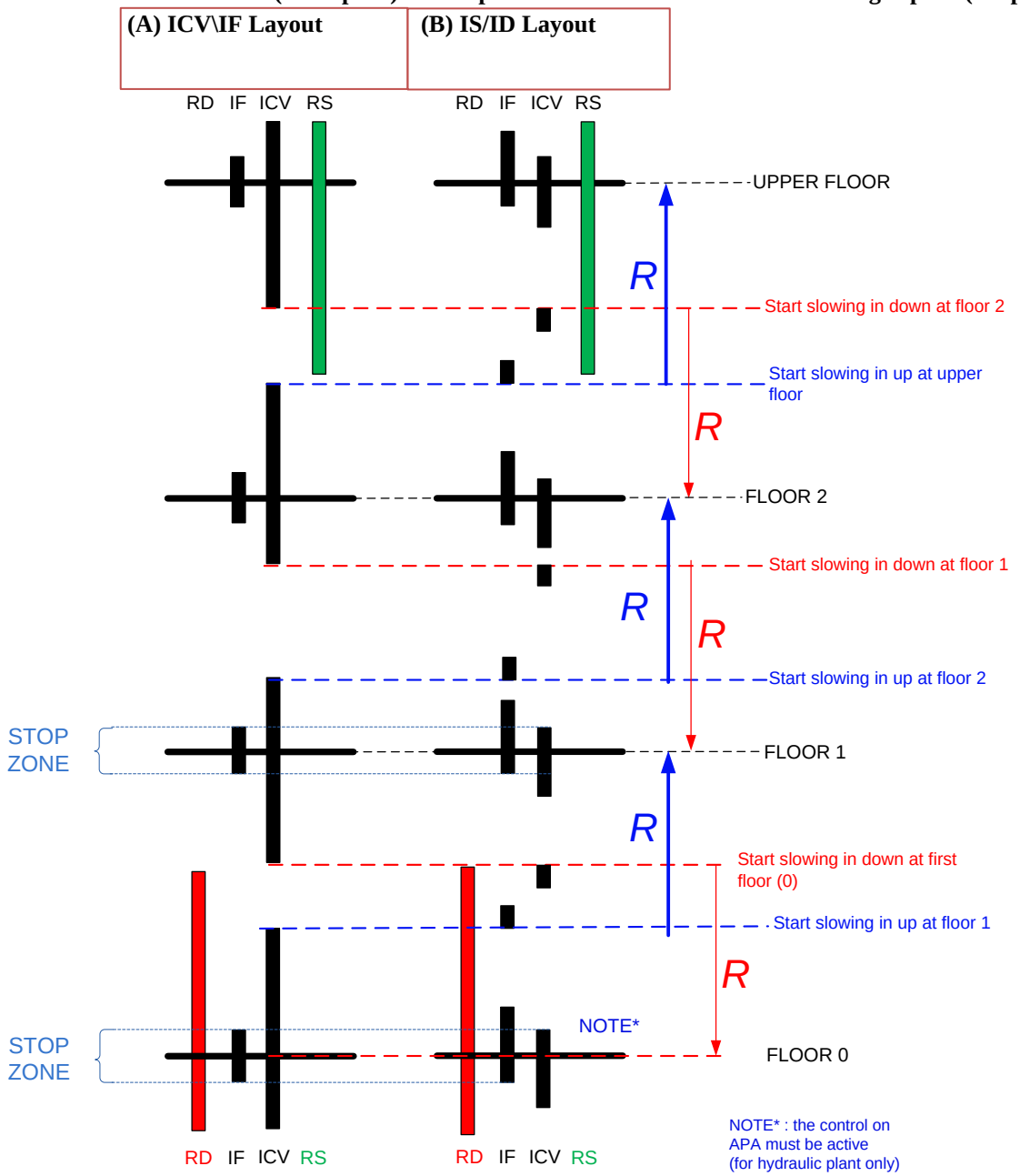


PROGRAMMING:

Address	NORMAL SLOWING DOWN		
	IS/ID	IF/ICV	IS/ID reverse
23	1		
2	"0" o "16" (normal selector)		
7	"0"	"0"	"64"
14	"0" o "16"	"32" o "48"	"0" o "16"
15	'0' o '64' (If/ICV open or closed at floor)		
35-40-42	99= not used		
63	Not program "+8"		

LONG SLOWING DOWN (R<DL<2R):

- **Fast System with enlarged slowdown**: these systems need a slowing down zone larger than a half normal distance between two consecutive floors (R<DL<2R).
  - **AT ALL FLOOR: (Fast speed)The output CPF it-s used for command the high speed (3° speed)**

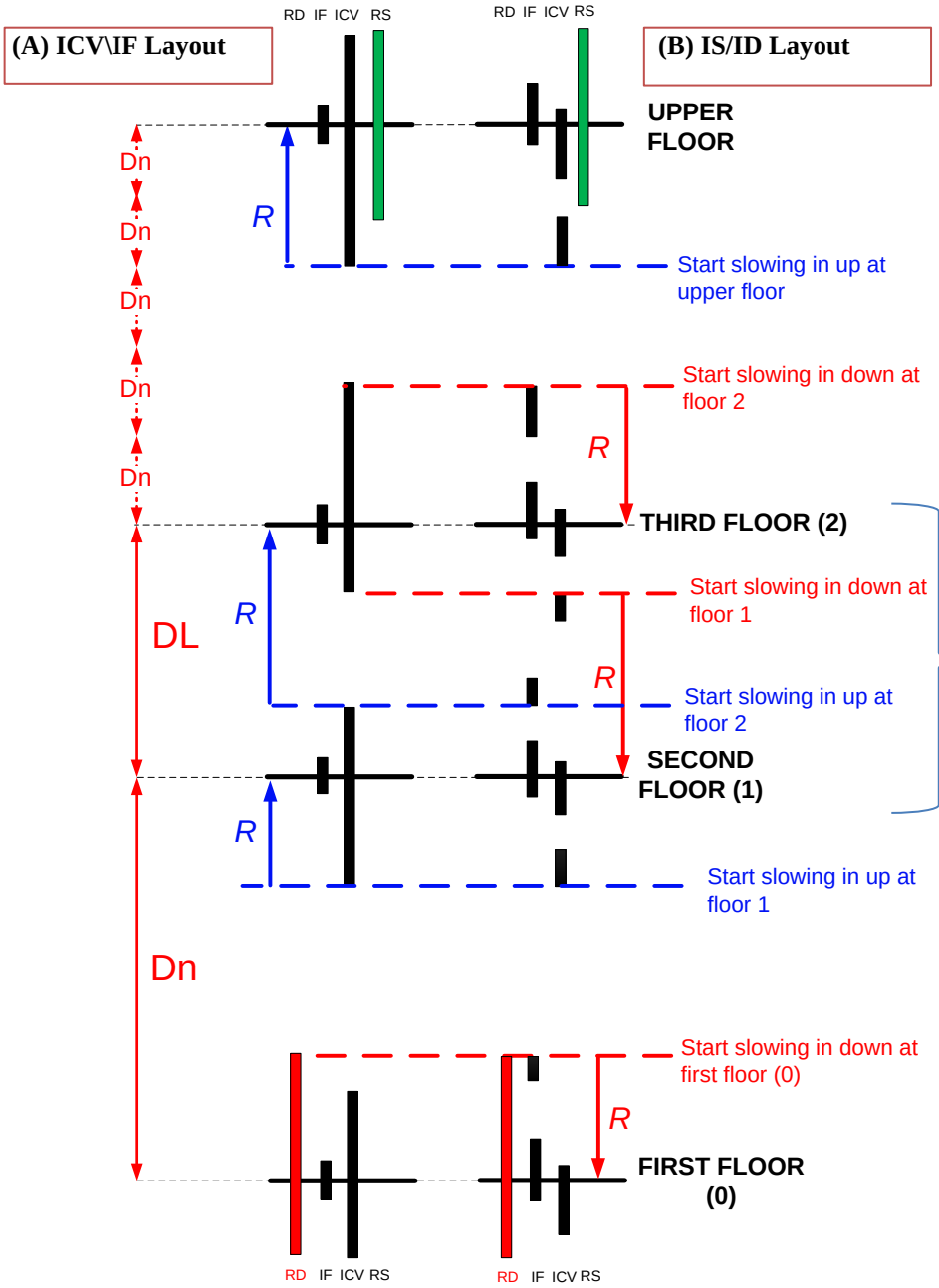


PROGRAMMING:

Address	LONG SLOWING DOWN AT ALL FLOOR		
	IS/ID	IF/ICV	IS/ID reverse
23	Delay slowdown from floor to floor, from 1 to 99 tenths of sec.		
2	"32" o "48" (long selector)		
7	"0"	"0"	"64"
14	"0" o "16"	"32" o "48"	"0" o "16"
15	'0' o '64' (If/ICV open or closed at floor)		
35-40-42	99= not used		
63	Not program "+8"		

- **PLANT AT NORMAL SLOW DOWN WITH MAX 3 COUPLE OF FLOOR AT LONG SLOWDOWN.**

EXAMPLE WITH A LONG SLOW DOWN BETWEEN THE FLOOR 1 and 2.



NOTE* : the control on APA must be active (for hydraulic plant only)

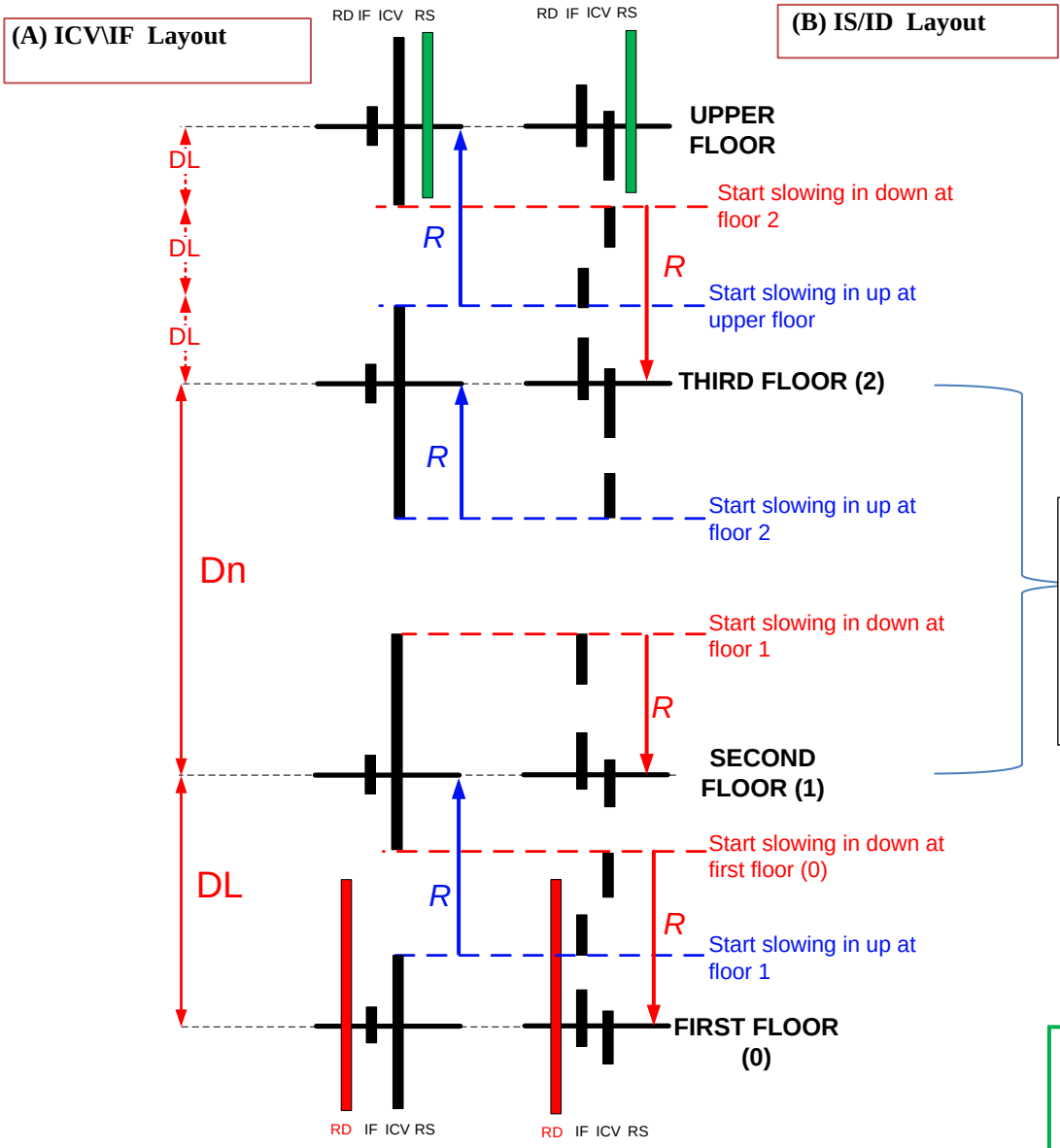
First couple of floors with **long** slow down
ADDRESS
35=”50”+”1”=51

PROGRAMMING:

Address	NORMAL SLOW DOWN (max 3 couple of floors at long slow down)		
	IS/ID	IF/ICV	IS/ID Reverse
23	1		
2	“0” o “16” (normal selector)		
7	“0”	“0”	“64”
14	“0” o “16”	“32” o “48”	“0” o “16”
15	‘0’ o ‘64’ (If/ICV open or closed at floor)		
35	“50”+”First couple of floors at long slow down”		
40	“50”+”Second couple of floors at long slow down”		
42	“50”+”Third couple of floors at long slow down”		
63	Not program “+8”		

Add **“50”** to the bottom floor of the couple of floors.
First floor=0 (between 0 and 1)
Second floor=1 (between 1 and 2)
Terzo piano= 2 (2 between and 3)
….
99= None couple of floors with long slow down

- **PLANT AT LONG SLOW DOWN WITH MAX 3 COUPLE OF FLOOR AT NORMAL SLOWDOWN**



NOTE* : the control on APA must be active (for hydraulic plant only)

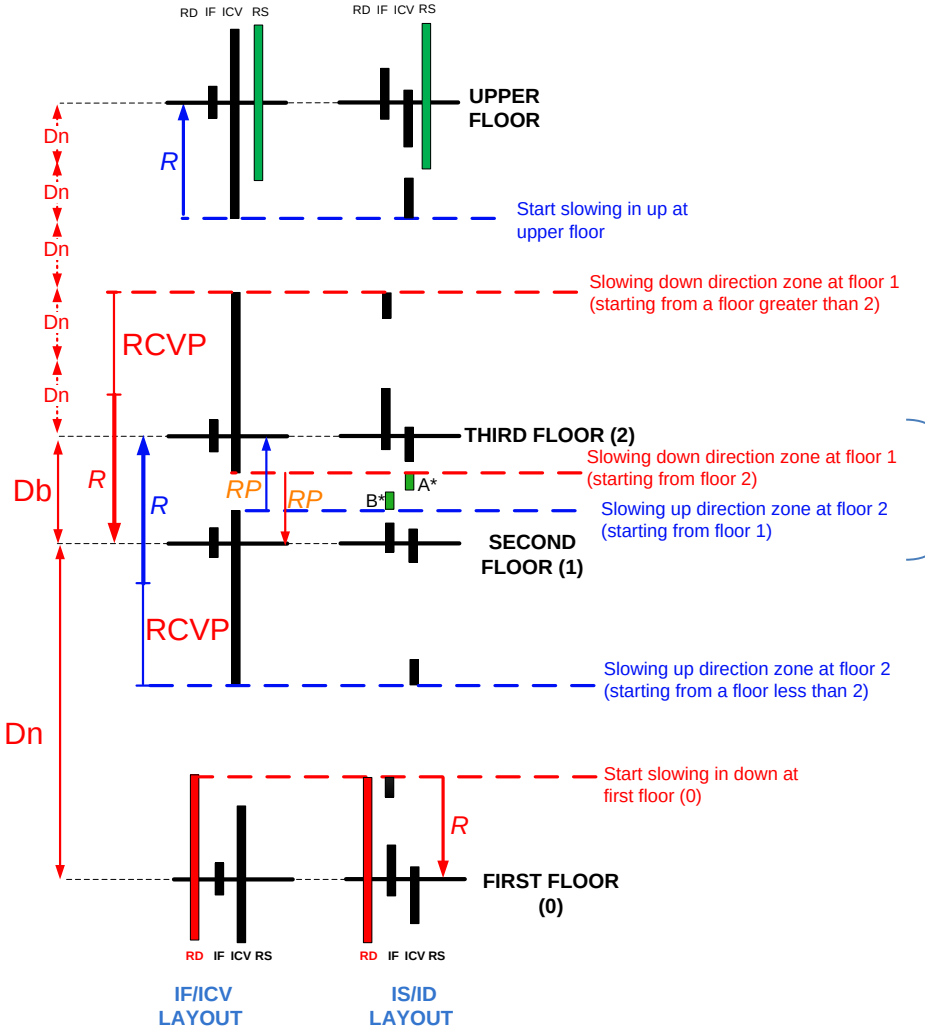
PROGRAMMING:

Address	LONG SLOW DOWN (max. 3 couple of floors with normal slow down)		
	IS/ID	IF/ICV	IS/ID reverse
23	1		
2	“32” o “48” (long selector)		
7	“0”	“0”	“64”
14	“0” o “16”	“32” o “48”	“0” o “16”
15	‘0’ o ‘64’ (If/ICV open or closed at floor)		
35	“50”+”First couple of floors at normal slow down”		
40	“50”+”Second couple of floors at normal slow down”		
42	“50”+”Third couple of floors at normal slow down”		
63	Not program “+8”		

Add **“50”** to the bottom floor of the couple of floors.
First floor=0 (between 0 and 1)
Second floor=1 (between 1 and 2)
Terzo piano= 2 (2 between and 3)
….
99= None couple of floors with normal slow down

➢ **Non-regular landings (D<R)**: this is defined as a floor whose distance from the upper floor is smaller the regular slowing down zone. This landing must be set up at addresses 35, 40, and 42.
The car will start to slow down entering the slowing down magnetic sensor of the previous floor of the couple, with a delay time programmable at address **23 (RCPV time) with a value from 0 to 99** in tenths of seconds

NOTE:
YOU CAN NOT SCHEDULE TWO CONSECUTIVE FLOORS COUPLES (example between 0-1 and 1-2)



First couple of near floor
Address **35**=1

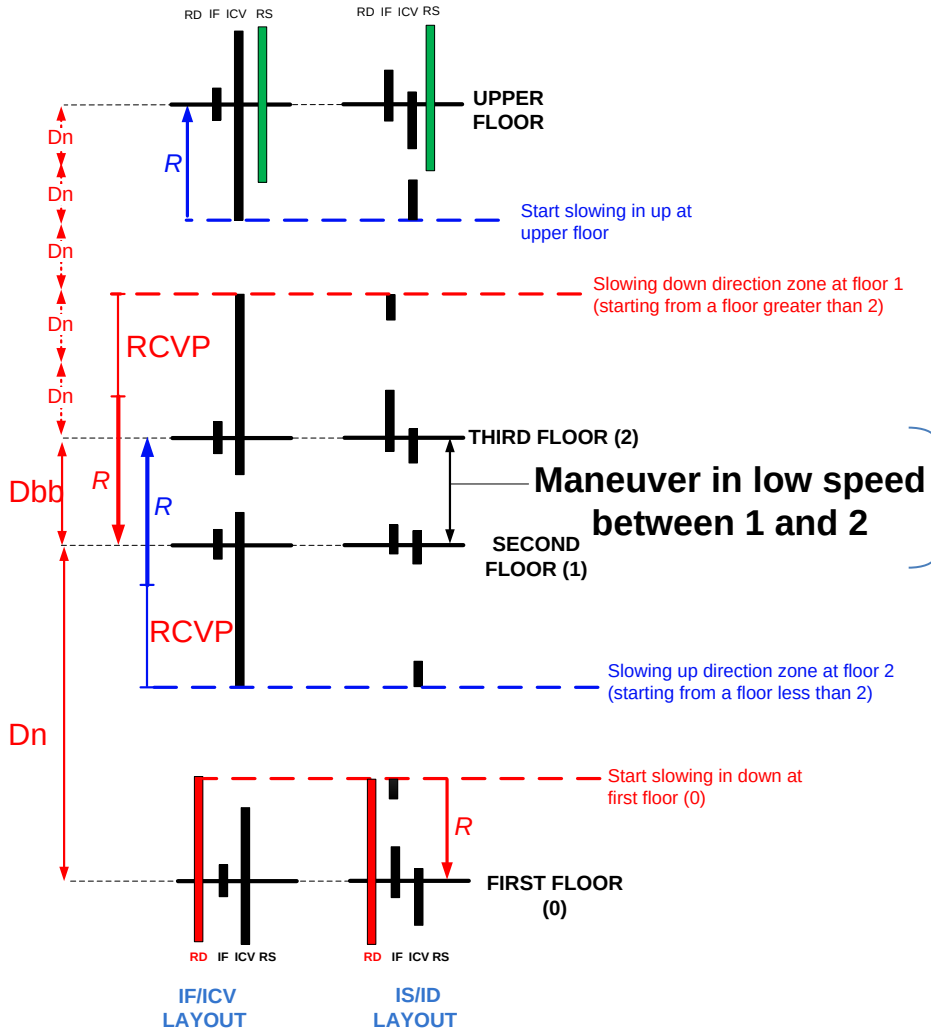
RP = Deceleration distance between the couple of near floors
RCVP=Delay slowdown for near floor (programmable)

PROGRAMMING:

Address	NEAR FLOOR		
	IS/ID	IF/ICV	IS/ID reverse
23	RCVP= DB/Speed		From 0 a 99 tenths of sec.
2	"0" o "16" (normal selector)		
7	"0"	"0"	"64"
14	"0" o "16"	"32" o "48"	"0" o "16"
15	'0' o '64' (If/ICV open or closed at floor)		
35	"First couple of near floor"		
40	"Second couple of near floor"		
42	"Third couple of near floor"		
63	Not Program "+8"		

Programming the couple of near floor:
First floor=0 (between 0 and 1)
Second floor=1 (between 1 and 2)
Terzo piano= 2 (2 between and 3)
….
99= None couple of floors with near floor

VERY NEAR FLOOR (D<<R) :
Insufficient space to insert magnets slowdown A * and B *



First couple of near floor
Address **35**=1

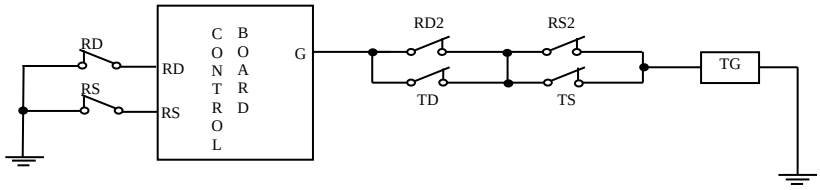
RP = Deceleration distance between the couple of near floors
RCVP=Delay slowdown for near floor (programmable)

PROGRAMMING:

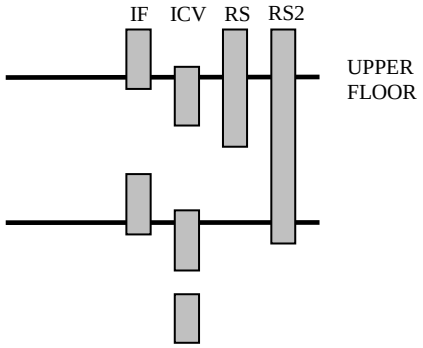
Address	VERY NEAR FLOOR		
	IS/ID	IF/ICV	IS/ID reverse
23	RCVP= DB/Speed		From 0 a 99 tenths of sec.
2	"0" o "16" (normal selector)		
7	"0"	"0"	"64"
14	"0" o "16"	"32" o "48"	"0" o "16"
15	'0' o '64' (If/ICV open or closed at floor)		
35	"First couple of near floor"		
40	"Second couple of near floor"		
42	"Third couple of near floor"		
63	**Program "+8"**		

Programming the couple of near floor:
First floor=0 (between 0 and 1)
Second floor=1 (between 1 and 2)
Terzo piano= 2 (2 between and 3)
….
99= None couple of floors with near floor

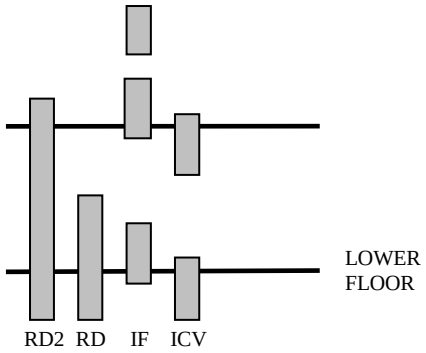
- When '**next-landing**' the extreme floor phasing sensor zone must not cover 2 floors (ref. figures 2.B and 2.D), so during synchronising phase it is necessary insert a second extreme floor phasing sensor for slowing down (RS2 and/or RD2, auxiliary extreme floor phasing sensors for car pre-slowing down), wired in this way.



The use of auxiliary extreme landing sensors is an alternative solution when there is an 'enlarged slowing down' zone, instead of APA's use.



(B) Pair of 'next-landing' at the upper floor



Pair of 'next-landing' at the lower floor

Magnets layout at the extreme landings in case of ' 'next-landing'

As an alternative to the solution of the double sensors, if the couple floors near or slowing down is at the lowest level, you can be re-phase the cabin on the top floor and on the contrary if the couple floors is to upper floor.

7.6 DELAYED STOPPING

It is possible to delay the car stop of a programmable time (TRIF). This delay time can be programmed at **add. 26** up to 9.9 seconds in units of 1 tenth of second. Stop delaying allows to decrease the re-levelling numbers.
If the programmed time is too long or stop magnet is too short, the car surpasses the stop zone, fault code '**42**' is signalled and in any case the car will stops crossing IF. Inspection service mode do not manage the fault '**42**' control.
TRIF delay is always active.
In rope plant, setting parameter **31 (L13) at '99'**, motor contactors deactivation is delayed of TRIF time after CS1 input deactivation that controls break opening. The RU output can be used for inverter moving enabling to allow controlled stop.

7.7 PHOTOCELLS AND SAFETY REOPENING SYSTEM

CM1, **CM2** and **INT** (**CM3**) are the inputs for the photocells and safety reopening system signals for 1° entance, 2° entrance and 3° entrance (respectively AP, AP2 and SCP).
To make work CM2 and INT (CM3) as safety reopening input signals for 2° and 3° entrance, it is necessary to enable the second and the third access programming the opportune values at address '0'and '3'.
If one of this inputs is opened:

- Disable the closing of the door for the respective access and command a reopening (if door were closing). Ref. paragraph 6.12
- Cancel the call.
- Extend the opening door time.

When the doors are closed (at input CS there is the 48V signal) this inputs are disabled.
At all floor are enabled only the inputs respective to the open entrances.
This inputs can be used to control the closing contacts of the external manual doors.

7.8 GONG

At the **add. '8' and '9'** it is possible to program this functions:

- 1 gong during speed change or at stopping;
- 1 or 2 impulses in down direction run (in up direction there always may be only 1 gong):

Address 8	Address 9	GONG
'**+0**' or '**1**'	'**+0**' or '**4**'	Gong during speed change, 1 Gong in up direction and 1 in down direction run
'**+2**' or '**3**'	'**+0**' or '**4**'	Gong during speed change, 1 Gong in up direction e 2 in down direction run
'**+0**' or '**1**'	'**+8**' or '**12**'	Gong during car stopping, 1 Gong in up direction e 1 in down direction run
'**+2**' or '**3**'	'**+8**' or '**12**'	Gong during car stopping, 1 Gong in up direction e 2 in down direction run

The gong impulse time is programmable at address '**20**' (TIG time) within range 2÷45 tenths of seconds.
To disable the GONG signal you must set the TIG time to 0.
The Gong is also disabled during programming procedure (PRESET = ON), during inspection operation and when the system is blocked.
If 2 gongs are used, the time interval between the two impulses is of 1 second (not programmable).

7.9 LAW '13' OPERATION

NOT USED IN THIS VERSIONE

7.10 IMMEDIATE STARTING

Pressing the doors closing push button (PCP) or any car call push button, TAP (waiting time with open door) is cancelled. So, the doors close and car starts immediately.

7.11 RETIRING CAM

PAT output is used for the retiring cam. With manual doors is available even CP output for this function programming '**0**' or '**32**' at **add. 2** or activating OPERATOR ON during run function (add. 12, value '2' or '3')**.** It is activated at the start of service (also in inspection mode), even if door are still opened, and it is disabled going to stop.

7.12 DOORS

Door opening and closing are regulated by programmable times:

- **TAP add. 16**: it is the time the door remains open with car reserved signal active. This timer is cancelled when the PCP button is pushed or when a car calling button is pushed. If car is at landing, there are not reservations and the system is programmed to do the parking with close doors (**add. 1 value '8' or '12'**), TAP is the time the plant wait before closing the doors and start to serve another booking (in collective operation).
  When car is at landing and there are already others reservations, it is the time after which doors close and the car starts again.
- **TOP add. 17**: maximum time for door opening command
- **TCH add. 18**: maximum time for door closing command. The closing relay remains ON until the complete closure, which is marked by the presence manoeuvre voltage on input CS, that works as limit switch. The maximum time of closing TCH must be greater than or equal to the time actually used to close the door. If the door's check is enabled (programming the value '**16**' or '**48**' at **address 10**), the activation of CPP input is used as confirmation of the door closing in addition to the presence of manoeuvre voltage on input CS (this means that the closing relay stay ON until CPP input is activated even if the manoeuvre voltage is present on input CS).
  The door closing command can persist for all the car run if it is enabled the **OPERATOR ON** function programming the value **'2' or '3'** at **address 12**.

- **TRA add. 19**: door opening delay after stop at floor if TRA<'70', otherwise (TRA>=70, delay=TRA-70) it is the delay on door opening (pre-opening) after the activation of APA input. APA input check must be enabled programming the value '+8' at address 62.

7.12.1 Door Checking

To enable this checks it is necessary to program at **address 10** the value **'16' or '48'** and it is necessary to connect the door relays control contact in series with the relative inputs APG and CPP (do not connect this inputs if this control is not active). If the control is not enabled connect at least a normally close contact of opening relay RAP at APG input or at CM input.
The fault relative to door control are:

- **Fault '50' and '61':** if the doors don't close, connector CS remain open for all the closing time TCH or RCP (closing external relay) is disabled (CPP remains closed) after delay time (RITUSC) on outputs and delay time (RITING) on inputs, board returns one of the following errors:
  - fault '**50**': If CPP input is closed means that the external closing relay RCP is faulty or doors are closed with safety contact that is out of order;
  - fault '**61**':If CPP opens means that RCP and door safety contacts are OK while door operator is faulty;

  In any case the board opens the doors and tries to close them again for a number of attempts that depend on the value programmed at **address 60** (NUMCH). If the problem persist the board return fault '0-31' (missed start). With the reopening devices activation (CM, PAP, etc...), the number of doors closing attempts made is carried to zero to avoid the missed start fault due to the continuos activation of these opening devices.
- **Fault '48' and '49':** if the doors don't open, connector CS remains live for all the opening time TOP, or RAP (external opening relay) is disabled (APG remains closed) after delay on RITUSC outputs and antirebounce time on RITING inputs, the board cancels all the booked calls and returns one of the following errors:
  - fault '**49**': If APG input remains closed (means that the external opening relay RAP is faulty or doors are opened with the safety contact out of order).
  - fault '**48**': If APG is opened means that RAP is OK while door operator is faulty, so the board returns fault '48'.

NOTE: If the door's check is not enabled (programming at **address 10 value '0' or '32'**), faults '61' and '48' remains active. Also, with the door's check disabled, the opening command is maintained for at least 5 seconds after the deactivation of CS input.
The doors control is automatically disabled during inspection mode and emergency mode.
ATTENTION: The door's check is used to enable or disable the reporting of door failures. The procedures for reopening and reclosing attempts in case of malfunctions in the door management remain unchanged regardless of the fact that the door's check is enabled or disabled.

7.12.2 Door Opening Exclusion During Testing Operation

To enable this function is necessary to set the parameter at **address 30, with an odd value**.
To enable the 'door opening exclusion during testing operation' it is necessary to keep pressed PCP push button (keep active the PCP input). Doors will be closed even if interlock will be opened.

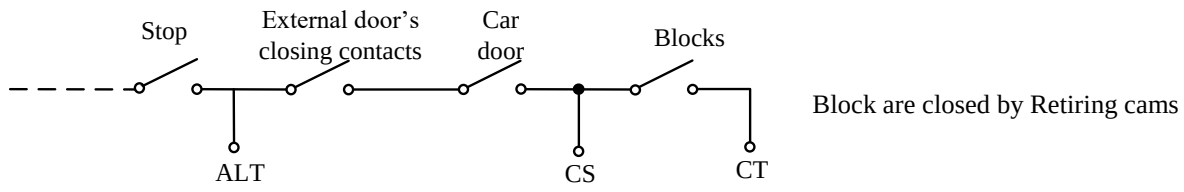
7.12.3 Manual Doors

To select the 'manual doors' option program value **'0' or '32' at address 2**.
In that case:

- **CP** output **drives the retiring cam;**
- **AP** output **drives the GONG signal**;

Two operation modes are possible depending on the value programmed at address **1**.

- Value '**0**' or '**4**' (Parking with open doors): the board accepts the call with input CS open too. The control board will wait the door safety interlock signals before to generate (after TMP time) a 'missed start' fault.
- Value '**8**' or **'12'** (Parking with closed doors): if CS input remains open all the calls are cancelled and the plants remains reserved.



After the last served call, the 'Reserved' car signalling's lights stay on for the TOC time.
The door faults and the closing and opening time are ignored.

7.12.4 Automatic Doors

To select the 'automatic doors' option program **'16' or '48' at address 2**.
In that case:

- **CP** output **drives the closing of the doors**;
- **AP** output **drives the opening of the doors of the first access**;

7.12.5 Semi-Automatic Doors

With semi-automatic doors (that means automatic car doors and manual landing doors) you have to select the same option as 'automatic doors': program '**16**' or '**48**' at **address 2**.
Landing doors safety contacts must be placed before the ALT terminal.
For hydraulic plant, to allow RE-LEVELLING even with landing doors open, it is necessary not disturb ALT input with approach contacts and it is necessary also to connect a relay to the approach end and stop the photocell (with a normally open contact) or closing the PAP input to avoid car automatic doors closing with the manual landing doors opened.

7.12.6 Multi-Entrances

We speak about Multi-Entrances when there is more than an access to the car (Accesses on different car sides).
In this case car has 2 or 3 distinct entrances. **Entrances** are **selective** when operations of the 2 or 3 entrances at the same landing are independents. Each selective door is considered like a separated stop, then, system has a stops number bigger than the landings one.
For each landing, it is possible to program at most 3 entrances. Each entrance is driven through the AP, AP2 e SCP signals and controlled by CM1, CM2 e INT(CM3) photosensors. They are programmed at addresses from 50 up to 59.

Floor No.
1 → AP (1° entrance)
2 → AP2 (2° entrance)
4 → SCP (3° entrance)

- the **third entrance** on output SCP must be enabled programming **'64' at address 3**.
- For **tunnel-opening** between the 2 entrances at one landing, program **'+4'** at the relative floor. For this function the third access must not be present.

All entrances are closed by CP signal.

For Example

Side 2		Side 1		Address	Programmed value
	Floor 7 add. 57	**7** (C8)		57	1
(C7) **6**	Floor 6 add. 56	**6** (C7)	Tunnel-opening	56	4
(C6) **5**	Floor 5 add. 55			55	2
(C5) **4B**	Floor 4 add. 54	**4A** (C4)	Independent openings	54	3
	Floor 3 add. 53	**3** (C3)		53	1
(C2) **2**	Floor 2 add. 52			52	2
	Floor 1 add. 51	**1** (C1)		51	1
	Floor 0 add. 50	**0** (C0)		50	1

The bold numbers represent the car call push-buttons for each floor and for each opening-side. The numbers in brackets (red numbers) represent the corresponding signals that must be connected to the control board or to the serial expansion board. Ref paragraph 2.5 and chapter 10.
At floor 4 there are two independent call push-buttons (selective opening).
At floor 6 we have the tunnel-opening and the two push-buttons corresponding to the two opening side are wired to the same board terminal because they are managed as a single call push-button.
At address 32 (NP parameter) must be programmed the number of floors (8) because the number of stops are automatically calculated.
NOTE:For plant with number of floor more than 10, the board active always the AP output (from 11 floor onwards)

7.12.7 OPERATOR ON During Run

This function can be useful to manage electronic doors operators that have not limit switches signals. To enable this function program '2' or '3' at the add. 12. Opening and closing commands are active until the system is reserved and the control of maximum opening (TOP) and closing (TCH) times is excluded. The doors open and close commands remains

active for a maximum time that is the missed start time TMP (add.21). If the commands reach this time the fault 67 is signalled. Ref paragraph 7.2.

7.13 LIMIT SWITCH TEST

This test can be made through board terminals (RS, RD, IF, ICV). It is necessary to provide bridges to the synchronising sensors and magnetic sensors of the extreme landing to create a floors count error.

7.14 PARKING

7.14.1 Parking Operation

- **Parking operation at landing NST**: after a programmable TSN time at add. **27** from '**0' to '99'** x 10 seconds from reserved signal deactivation, car is moved to parking flor (NST) programmed at address 34. this operation is disabled if NST > stops number.
- **Parking operation at lower floor after 14 minutes**: only for hydraulic lift there is an automatic operation that moves car to the lower floor after 14 minutes from reserved signal deactivation, programming '0' or '2' at add. 12. When the car is at ground floor ('0' floor) cannot be move to other destinations for parking.

During Firefighters service, Fire service and internal mode any automatic parking operation is disabled. If parking operation is with close doors (SPC, Ref. paragraph 6.14.2), after this operation doors do not open and there is not GONG.

7.14.2 Parking With Open or Close Doors

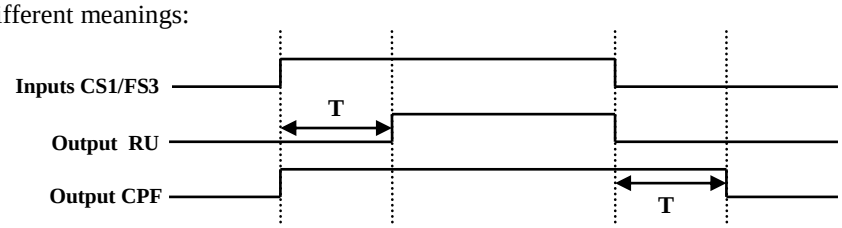
After last service, car can stand with **open door** (SPA) programming '**0' or '4'** at add. **1**, or with **close door** (SPC) programming '**8' or '12'** at add. **1**. If SPC is enabled, at the end of parking operation, the doors do not open and there is not GONG.
If the system is programmend SPC (Parking with close door), it is possible to program up to 2 stops with parking with open door (SPA): one at **address. 36** (SPA1) and the other at **address 37** (SPA2). Dually If the system is programmend SPA (Parking with open door), it is possible to program up to 2 stops with parking with close door (SPC): one at **address. 36** (SPA1) and the other at **address 37** (SPA2).
With the open doors parking active, doing a call at the same floor activates the GONG signal.
To exclude the 2 stops with 'inverted' parking mode, program a value greater than '31'at add. 36 and 37.

7.15 TIMERS

Lift control board has two general purpose timers:

- **CS1 input/ RU output**
  This delay may be set to a value **from '0' to '96'** tenths of second at address **31** (L13). It is disabled when '99' value is programmed, and CS1/RU are used for the safety circuit or for inverter control.
- **FS3 input/ CPF output (TMR3)**
  This delay may be set to a value **from '0' to '95'** tenths of second at address **29** (CHF).

This two timers have different meanings:



the first timer concerns the excitement instant, the second one the de-energize instant.

7.16 PLANT TYPES: SINGLE AUTOMATIC PUSH BUTTON (SINGLE CALL), COLLECTIVE OR DUPLEX PLANT

7.16.1 Single Automatic Push Button Plant (Single Call)

It accepts only one call at time.

7.16.2 Down Collective Plant

It is divided into 2 ways:

- Car calls
- Landing calls

It accepts all calls, but landing calls are accepted only during car down run and if load is not full.

Up to 32 stops: up to **12 stops with DEC16, the board to decode the position**, to reach **32 stops** control board needs serial expansion modules. Duplex plants are possible thanks to a connection between 2 control boards;
Multiplex systems are possible up to 4 lifts thanks to a multiplex central board

7.16.3 Up / Down Collective

It is divided into 3 ways:

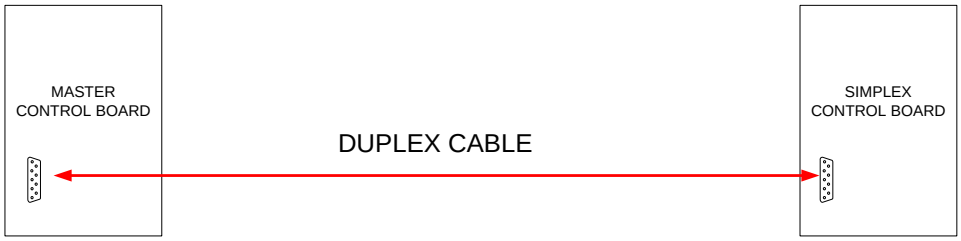
- Car calls
- Up Landing calls
- Down landing calls

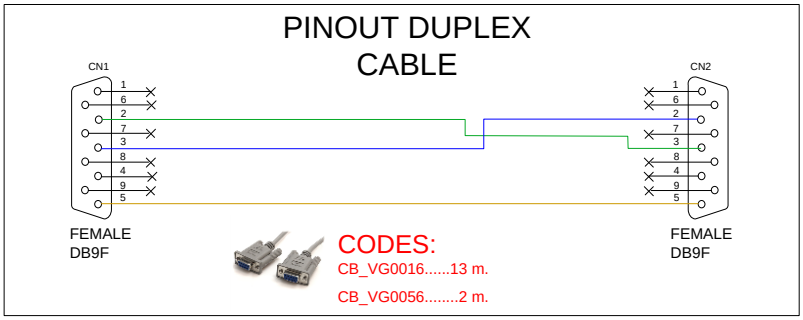
It accepts all calls, but landing calls priority depending on run direction and if load is not full.
Up to 32 stops: up to **8 stops with DEC16 board to decode the position**, to reach **32 stops** control board needs serial expansion modules.
Duplex plants are possible thanks to a connection between 2 control boards;
Multiplex plants are possible up to 4 lifts thanks to a multiplex central board.

NOTE: Programming at the add. 14, the value '16' or '48' it is possible activate a simplified management of collective plant. When the arrival at landing happens, all reservation are cancelled; in case of overload activation, all landing reservation are cancelled

7.16.4 Duplex Plant

It is possible manage duplex plant using two lift control boards.





In order to manage duplex plant it is necessary setup both control boards and program duplex service mode ('+4' at parameter MISC (add. 63).
It is necessary also setup one of 2 boards like 'master', programming '+16' at parameter 63 of chosen board.
Each lboard controls only one car so:

- car signals are wired directly to the control board
- landing signals are parallel wired to both control boards

All informations will be exchanged between the 2 expansion boards through RS232 imput (9 wires with a serial cross cable.
The call assignment is dynamic and it is calculated at all times.
Functioning is synthetically resumed with these cases:

- if both cars are stopped: the landing call is served by the nearest car
- if both cars are running: the external call will reach both the control boards but the call will be served from the one that can do the work faster. (not necessary is the nearest car). For example, if the first car is nearer then the second one, but it has some car calls at the intermediate landings (between car position and destination floor), the second one will reach this floor for serving the call;
- if both cars halt at the same level: the car with 'master' control board will reach the destination floor.

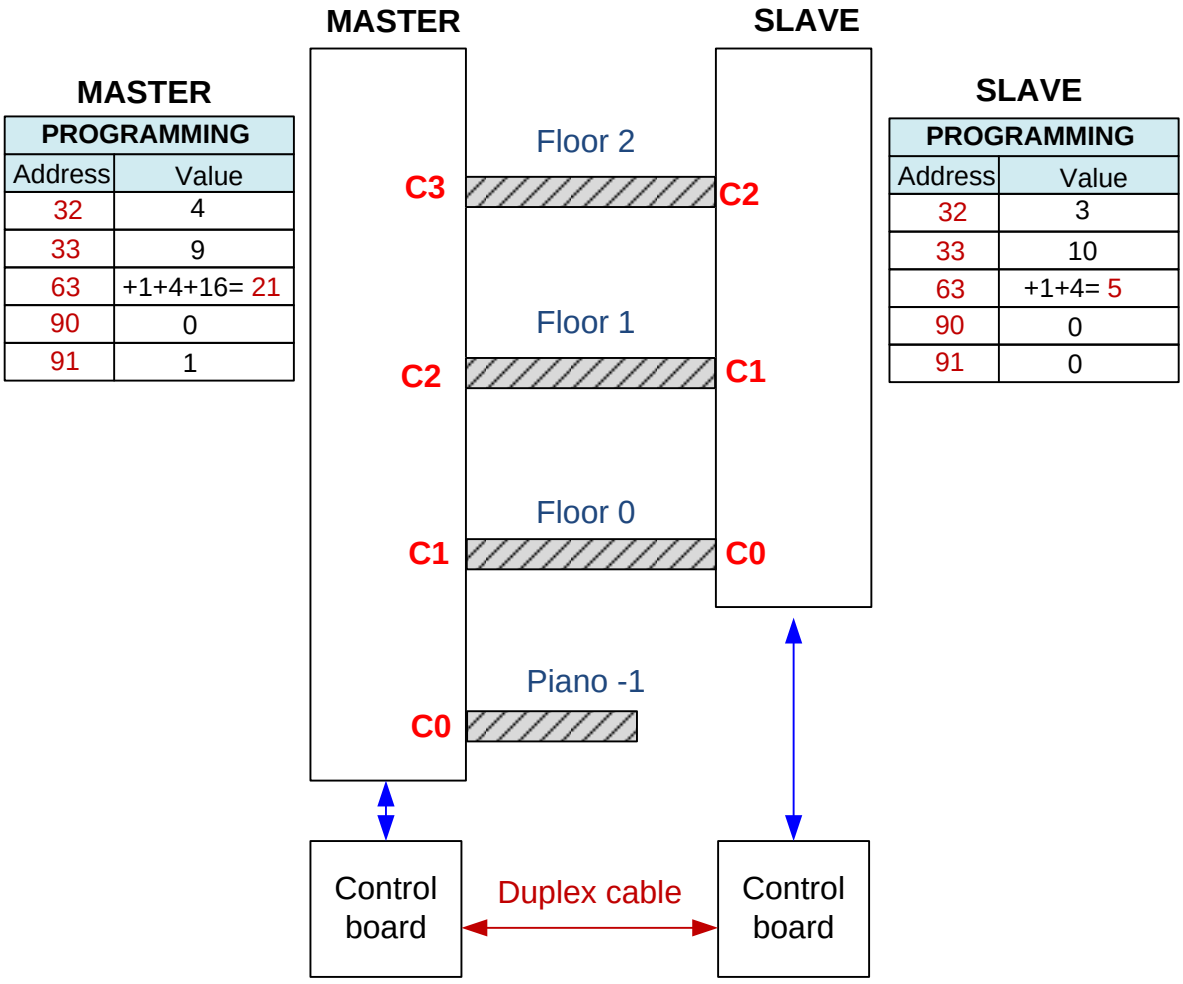
If serial expansion board are used to collect landing calls you will need 2 board for each call. Each serial expansion board will be connected with only one control board whereas each landing signals will be connected both to the 2 expansion boards in parallel connection.
If a lift is in one of the following cases will send to the other lift its 'out of order' state, so the operating one will supply all the calls :

- in inspection service mode
- in programming mode
- in faulty state
- during syncronizing operation
- during emergency operation
- in Fire service mode of firefighters service mode
- in internal service mode
- with CCC and CCS inputs active
- with ALT input active

NOTE: Set the addree 90 of both plat at 0.

7.16.5 Duplex imperfect (a simplex with a floor in less down)

You can connect two boards in duplex mode with levels starting different. See example below.
To connect the call to see "attached duplex direct".
Pressing the button calls for more than 3 seconds, the call will be served by the MASTER.



7.16.6 Duplo

Enabling the Duplex mode (ref paragraph 6.14.4) in a single automatic call system (address 13 value ‘0’ or ‘8’) you can have the Duplo operation.

7.16.7 Multiplex Plant

Thank to a multiplex central board you can control up to 4 plants.
For more information look particular manual up.

7.17 INVERTER / ELECTRONIC UNIT MANAGEMENT

In the rope plant, setting parameter 31(L13) at ‘99’ contactors activation is delayed of TRIF time by CS1 input deactivation (break opening control) whereas RU output can be used to enable inverter moving to allow controlled stop. Otherwise it can be used the SCP output (if there is not the third entrance, do not programming ‘0’ at add. 3): this output,

during standard working, is activated only to the arrival at the destination floor; during phasing mode and inspection mode SCP is activated only to the arrival at extreme floors and remains activated at standing floor.
In the hydraulic plant, SCP output can be used even as 'car at landing' signal.

7.18 SPEED

7.18.1 One Speed

If plant has only one run speed, **program** '**4**' or '**12**' at **address 1**

7.18.2 Two Speeds

If plant has two speeds ('high' and 'slow'), **program** '**0**' or '**8'** at **address 1**

7.18.3 Three Speeds

Three speeds:

- Stopping speed (slow speed)
- Velocity to cover distance between 2 floors (V1P or average speed)
- Velocity to cover distance larger then 2 o more floors (V2P or high speed)

High speed is activated when the distance covered is larger then 2 floors and syncronizing/phasing or inspection/maintenance service modes are not active.
Programming the time CHF (**address 29**) with a **value >= 97**, the CPF output commands the high speed change (V2P).
To setup the slowing down zone for the maximum speed V2P, it is possible to enable the 'enlarged slowing down zone' function (programming the value **'32' or '48'** at address **2**) while, for average speed V1P, the slowdown can be delayed with the RCPV Time (**address 23**). If the TST time (**address 25**) is not programmed with value **'99'**, this delay time (RCPV) is active during synchronizing mode too, so the synchronizing sensor must be placed at a lower distance that the one needed for the slowdown at maximum speed.

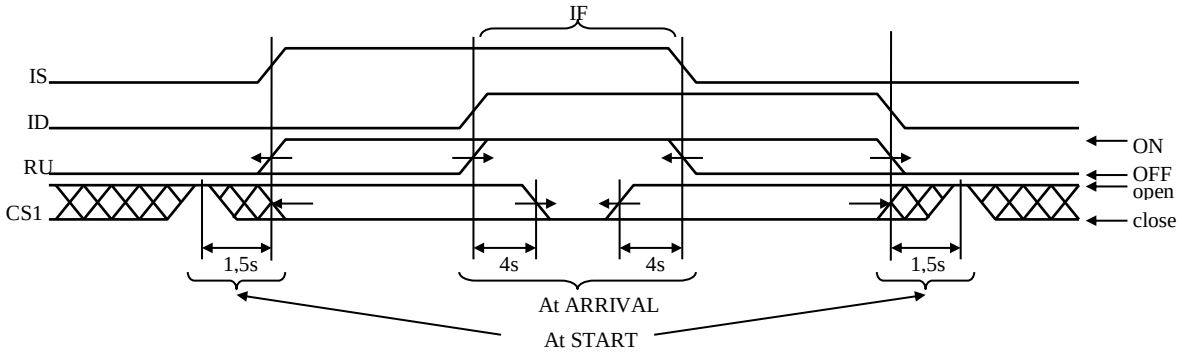
8. CONTROLS

8.1 SAFETY CIRCUIT

To enable safety circuit control **do not program '+4' at add. 62** (in this way TMR1 is disabled for general use). When this control is enabled and when CS1 is opened re-levelling is automatically disabled.
If there are the following situations:

- Plant is not in INSPECTION SERVICE MODE
- ALT is not activated
- Plant is not in OVERRUN
- Plant is not in EMERGENCY SERVICE MODE
- Plant is not in PHASING operation
- It is an hydraulic plant with DA/DB sensors configuration
- Not call is activated

control is carried out on CS1 input according to the following picture:



Only in IF zone, if after 1,5 seconds (add. 44 – RITUSC) CS1 remains open the plant will halt and it will be showed **fault '83'**.
To activate the safety circuit can be used the output RU.
RU output is ON during re-levelling programming at address 31 the value '99'.
Programming at address 31 the value '98' RU output is activated in the door's opening zone if it is enabled the check on APA input (value '+8' at address 61) , otherwise is actifivated when the stop zone is reached.
Halt '83' is permanent, so it is possible to unlock the plant only pressing SPEEDY push button on DISP900 programming keypad. This halt can be disabled programming **'+4' at add. 62**. In this way CS1 input is disabled but RU remains activated.
The same fault happens if during re-levelling phase CS1 is open.

8.2 RE-OPENING DEVICES

Re-opening device check signals if **photocells, safety reopening systems (CM)**, doors open push button (**PAP**) remain active for more than the programmable time (seconds) at the address 21 TMP. If this happens the **fault '67'** is generated.
Regarding inputs CM and PAP failure is triggered only if the system is programmed as collective and if there is a reservation active.
The fault is generated regardless of the type of installation (collective or single automatic call) if the AP output remains active for a time longer than the value setted at address 21.

8.3 MAXIMUM TRAVEL

TMC is the maximum travel (run) time; this is the time within the car can reach one floor. **TMC** is programmable from **10 to 99 seconds at add.22**.

- **If TMC < 10 MAXIMUM TRAVEL TIME = DEFAULT VALUE**
- **If TMC > 80 MAXIMUM TRAVEL TIME = 80sec. +(TMC – 80) tenth * 10 DEFAULT VALUE**
- **If TMC = 99 MAXIMUM TRAVEL TIME = infinite**

It's enough to program a time for one travel of only one floor becouse this timer is resetted in stop zone and when entering or leaving the slowing down zone. Over this maximum time, the control board generates one of the following faults depending on the situation in which is the car the timer has expired:

- **Alarm 76**: Maximum travel time for floor approaching in up direction expired;
- **Alarm 77**: Maximum travel time for floor approaching in down direction expired;
- **Alarm 78**: Maximum travel time for high speed in up direction expired;
- **Alarm 79**: Maximum travel time for high speed in down direction expired;

After the occurrence of one of this alarms the system is not blocked and you can retry. If the maximum travel time espires for two consecutives times than the system enter in permanent halt signalling the '80' fault code. The HALT can be immediate ('4' or '12' at add. 5) or it can happen after the **return operation at landing '0' (P0)** (programming '0' or '8' at add. 5).
Plant can be unlocked only pressing SPEEDY on the programming keypad DISP900 or entering in INSPECTION SERVICE mode.
During EMERGENCY and INSPECTION SERVICE operations this timer is disabled.

8.4 RUN DIRECTION

RD and **RS** inputs are used also for run direction control.
If the car, leaving from a point out of the **synchronizing sensors** (an intermediate floor), moves toward opposite direction of the one commanded, when it reaches synchronising sensor is halted (only if immediate halt is activated programming '**4' or '12' at add. 5**) and control board shows '**84' fault** code. The control board knows that car is moving in the opposite direction becouse after TD activation the car reaches RS phasing sensor or , after TS activation car reaches RD.
If car is already in a **synchronizing sensor** and leaves in a wrong run direction, it goes in overrun signalling the **'81' fault**.

8.5 MOVABLE PLATFORM

There are three inputs for movable platform control:
- **CCO: busy car** contact
- **CCC: full load** contact
- **CCS: overload** contact

The contacts presence has to be programmed at add. 63, whereas if it is necessary CCC connection directly with the control board, even if there is a serial wiring, need to program '**+16' at add. 38**.
CCS is programmable **open active** (normally close) setting **'+32' at the add. 62**, otherwise CCS is **close active** (normally open).

- **CCO**:
  - **SINGLE CALL PLANTS:** when CCO is close, opening doors is activated and plant is busy and do not allow to make landing calls through CE contact.
  - **COLLECTIVE PLANTS:** when CCO is open, plant receives one only car call at time (cancel any last internal reservations)
- **CCC:**
  - **SINGLE CALL PLANTS:** when CCC is enable, doors open is activated and car is busy up to load is full
  - **COLLECTIVE PLANTS:** when CCC is close, landing calls are not sent but they are stored and will be send when CCC will be open
- **CCS:**
  - **SINGLE CALL PLANTS:** when CCS is enable, plant is kept halted with open doors and SNR alarm signal is activated. Call is deleted. CCS is not considered outdoor zone and during travel.
  - **COLLECTIVE PLANTS:** in the case of SIMPLIFIED COLLECTIVE PLANT (add. 14, '16' or '48'), when CCS is activated, the lift works like in a single automatic push button plant and all reservation are deleted; otherwise, in a standard collective plants (add. 14, '0' or '32'), when CCS is activated, it keeps the lift halted with opened doors, SNR ringing is activated and reservations are not cancelled.

This three signals' control is disabled during car travel. (these signals work only when the car is stopped at landing).

8.6 ENGINE TEMPERATURE

To control engine temperature, it is necessary to connect at TM board input:

- **PTC probe** programming parameter **'+2' at add. 62**.
  If analogic value in input is higher than wanted limit (resistance thermometry > 4K Ω), plant goes in permanent halt with **'56' fault**. Unlocking is possible only if TM input measures a resistance thermometry < 1,5K Ω
- A **normally open contact**, **connected to temperature sensor** (NOT PTC probe), programming the value **'+2'** at add. 62.
  If temperature sensors are on, engine is automatically halted, safety circuits'power supply is cut off (EXC open) and TM contact is close.
  Plant is halted with '**56' fault**, this fault is permanent only during EMERGENCY mode.

- Temperature control engine(TM) in maintenance:
  Is activated if there is “4”or “12” at the address 5 (immediate block).

  - The fault blocks the elevator to the next restart from the activation TM (in order to allow completion of the run).
  - The fault is excluded for 5 seconds from activation of the maintenance (to allow a restart also after the intervention of the fault).

Plant is halted with ‘**56’ fault**, this fault is permanent only during EMERGENCY mode.

8.7DOORS ZONE

Doors zone is the hoistway space where doors can open.
This zone is always enable in stop zone (IF in ICV/IF layout or in IF-ICV superinposition in DA/DB layout).
In IF/ICV layout, doors zone is disabled when car crosses stop zone and starts a regular service, otherwise, in DA/DB layout is deactivated when leaves IF and ICV magnetic sensors.
If APA input is activated programming ‘+8’ at add. 62, doors zone is activated in advance when APA signal is present simultaneously with IF or ICV.

9. SIGNALLING

9.1 POSITION / ARRIVAL / RESERVATION

9.1.1 Position Signalling

DECIMAL VALUE POSITION

Decimal value position indicator shows always the **floor number**

- In Parlallel system: indication is provided from I/O **0-23** (only single call plants) or from DEC16 board.
- In Serial system, these indication are available on **VEG0400** and **SERCAR_LCD** (car serial boards)

BINARY POSITION

Bynary code position signalling (floor only) is provided from **A, B, C, D and SCP binary outputs.** For the position it is necessary to set at the add. 8,the values '1' or '3', only if car calls are connected locally ('+2' add. 61).Ref.paragraph 2.5
Connecting ABCD to the auxiliary board **DEC16** you can decode the position indication of first ten stops from binary code to decimal code. The programmed **underground levels** number has not effects on these outputs (e.g. if the car is in the lower extreme landing '-2', DEC16 will turn on lower lights).
ABCD outputs can be negated programming **'32' at add. 61**.
NOTE:

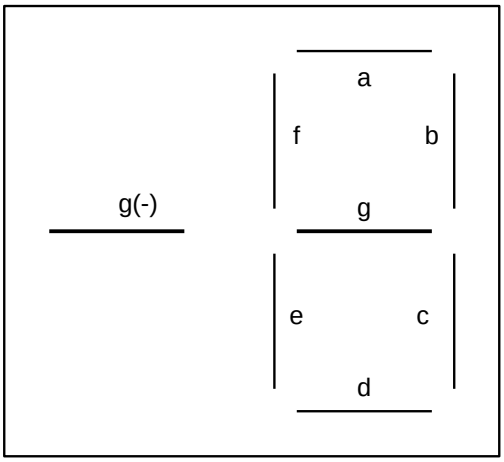
In the event that the number of floor (ind. 32) is> 16 the output "SCP" is used for binary code.

ON = output active (Output closed to GND)
OFF = output inactive(Output open)

SCP(E)	D	C	B	A	Address 61	
					(+32)	(+0)
OFF	OFF	OFF	OFF	OFF	0	31
OFF	OFF	OFF	OFF	**ON**	1	30
OFF	OFF	OFF	**ON**	OFF	2	29
OFF	OFF	OFF	**ON**	**ON**	3	28
OFF	OFF	**ON**	OFF	OFF	4	27
OFF	OFF	**ON**	OFF	**ON**	5	26
OFF	OFF	**ON**	**ON**	OFF	6	25
OFF	OFF	**ON**	**ON**	**ON**	7	24
OFF	**ON**	OFF	OFF	OFF	8	23
OFF	**ON**	OFF	OFF	**ON**	9	22
OFF	**ON**	OFF	**ON**	OFF	10	21
OFF	**ON**	OFF	**ON**	**ON**	11	20
OFF	**ON**	**ON**	OFF	OFF	12	19
OFF	**ON**	**ON**	OFF	**ON**	13	18
OFF	**ON**	**ON**	**ON**	OFF	14	17
OFF	**ON**	**ON**	**ON**	**ON**	15	16
ON	OFF	OFF	OFF	OFF	16	15
ON	OFF	OFF	OFF	**ON**	17	14
ON	OFF	OFF	**ON**	OFF	18	13
ON	OFF	OFF	**ON**	**ON**	19	12
ON	OFF	**ON**	OFF	OFF	20	11
ON	OFF	**ON**	OFF	**ON**	21	10
ON	OFF	**ON**	**ON**	OFF	22	9
ON	OFF	**ON**	**ON**	**ON**	23	8
ON	**ON**	OFF	OFF	OFF	24	7
ON	**ON**	OFF	OFF	**ON**	25	6
ON	**ON**	OFF	**ON**	OFF	26	5
ON	**ON**	OFF	**ON**	**ON**	27	4
ON	**ON**	**ON**	OFF	OFF	28	3
ON	**ON**	**ON**	OFF	**ON**	29	2
ON	**ON**	**ON**	**ON**	OFF	30	1
ON	**ON**	**ON**	**ON**	**ON**	31	0

DIGITAL position (7 segments plus sign "-")
The digital position signal (7 segments with sign "-") is available, set the value '+48' at address 61, used the same outputs for the decoded one pole fore floor (P0.. P7). Ref. paragraph 2.5. and chapter 10.
The correspondence between the mapping one pole for floor and 7 segment mapping is shown in the table below.

TABLE Fram one pole for floor to 7 segments	
1 POLE FOR FLOOR	*7 SEGMENTS*
P0	a
P1	b
P2	c
P3	d
P4	e
P5	f
P6	g
P7	g(-)
…	…



GRAY CODE POSITION:
Gray code position signalling (floor only) is provided from **A, B, C, D and SCP .** For the position it is necessary to set at the add. 8, the values '1' or '3', only if car calls are connected locally ('+2' add. 61).Ref.paragraph 2.5
For active this coding it's need programming the value **'+16' and "+32" at add. 61**.

ON = Uscita Attiva (GND)
OFF = Uscita Disattiva (Aperta)

SCP(E)	**D**	**C**	**B**	**A**	**Parametro 61("+16 " "+32")**
OFF	OFF	OFF	OFF	**ON**	0
OFF	OFF	OFF	**ON**	**ON**	1
OFF	OFF	OFF	**ON**	OFF	2
OFF	OFF	**ON**	**ON**	OFF	3
OFF	OFF	**ON**	**ON**	**ON**	4
OFF	OFF	**ON**	OFF	**ON**	5
OFF	OFF	**ON**	OFF	OFF	6
OFF	**ON**	**ON**	OFF	OFF	7
OFF	**ON**	**ON**	OFF	**ON**	8
OFF	**ON**	**ON**	**ON**	**ON**	9
OFF	**ON**	**ON**	**ON**	OFF	10
OFF	**ON**	OFF	**ON**	OFF	11
OFF	**ON**	OFF	**ON**	**ON**	12
OFF	**ON**	OFF	OFF	**ON**	13
OFF	**ON**	OFF	OFF	OFF	14
ON	**ON**	OFF	OFF	OFF	15
ON	**ON**	OFF	OFF	**ON**	16
ON	**ON**	OFF	**ON**	**ON**	17
ON	**ON**	OFF	**ON**	OFF	18
ON	**ON**	**ON**	**ON**	OFF	19
ON	**ON**	**ON**	**ON**	**ON**	20
ON	**ON**	**ON**	OFF	**ON**	21
ON	**ON**	**ON**	OFF	OFF	22
ON	OFF	**ON**	OFF	OFF	23
ON	OFF	**ON**	OFF	**ON**	24
ON	OFF	**ON**	**ON**	**ON**	25
ON	OFF	**ON**	**ON**	OFF	26
ON	OFF	OFF	**ON**	OFF	27
ON	OFF	OFF	**ON**	**ON**	28
ON	OFF	OFF	OFF	**ON**	29
ON	OFF	OFF	OFF	OFF	30

9.1.2 Underground Floors

At add. 33 (NS) is possible to program what value visualize on the display when there are underground levels.
Underground floors number has effect only on the serial displays (car and floors).
In the following table are resumed the values visualized from display at the lowest floor depending on value programmed at add. 33 (NS).

"UNDERGROUND FLOORS" TABLE	
NS	*Number displayed at floor 0*
0	0
1	-9
2	-8
3	-7
4	-6
5	-5
6	-4
7	-3
8	-2
9	-1
10	0
11	1
12	2
13	3
14	4
15	5
16	6
17	7
18	8
19	9
20	10
…	…

9.1.3 Arrival Signalling

In parallel mode, arrival signalling can be supplied in parallel plant **from 0-23 connectors** (only single call plant) or from the ABCD binary outputs. Arrival on ABCD is available only if the car calls are connected locally ('+2' at the add. 61) and programming at the add. 8 the value '0' or '2'. Ref. paragraph 2.5.
Arrival signalling can be supplied also from car and landing serial expansion boards **VEG0400, SERCAR_LCD, FLOORDIS, VEG800** etc. (Ref paragraph 2.5, 10.1 and 10.2)

9.1.4 Reservation Signalling

In parallel mode, reservation signalling can be supplied **from 0-23 connectors** or from car and landing serial expansion boards **VEG0400, SERCAR_LCD, FLOORDIS VEG800 etc. (**Ref paragraph 2.5, 10.1 and 10.2).

9.2DIRECTION

FS/FD outputs on the control board give run direction indication if **it is programmed '0' or '32' at add. 14.**
The arrow lights ON after the first call and it turns OFF after last stop in the same direction. It never turns OFF on intermediate stops.
There are 3 different situations during speed change of last stop:

1. if there was a landing call for opposite direction, when speed change happens, current arrow turns OFF and a new arrow turns ON (not important if there is or not a car call). If within TAP (add. 16) time a next car call is not commanded, the new arrow turns OFF;
2. if there was a landing call for the same direction, current arrow remains ON. If within TAP (add. 16) time a next car call is not commanded, the new arrow turns OFF;
3. if both external calls are made at that floor, current arrow remains ON up to TAP (add. 16) waiting end, after that an other arrow turns ON. If within TAP (add. 16) time a next car call is not commanded, the new arrow turns OFF;

9.2.1 Next arrow direction

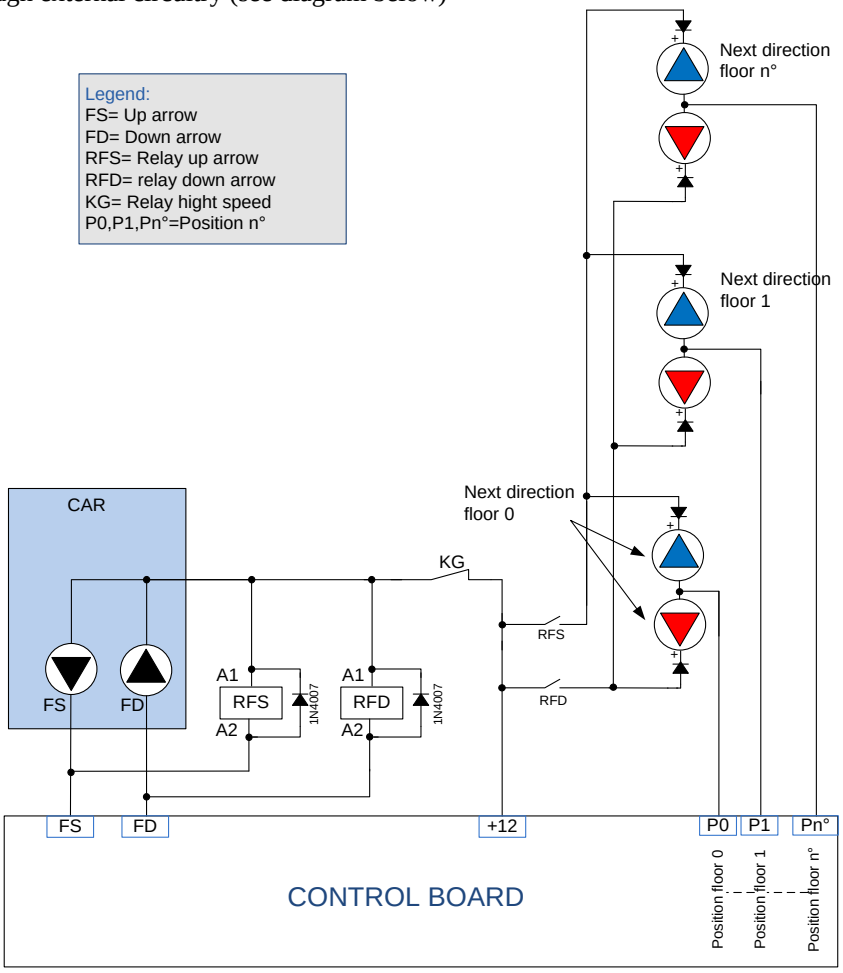
The next direction of the arrow is use for reserved plants in particular in plants duplex, triplex and quadruplex.

- The display of the arrow only appears on the floor where he stopped the car.
  - Turns on at the beginning of the slowdown and turns off at the end of the closing doors of the next departure.

It’s possible to have this signalling in 2 ways:

- In parallel

through external circuitry (see diagram below)

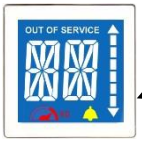


- In serial:

You can activate the next direction of the arrow in the display serial:

ICARO_DSR_D00

LCD650-A: Appropriate programming menu 1 and 5 of the display:
Set the number of floor for each display (32 = function off)
menu 1, and activate the next direction to menu 5 (YES 5 =menu)
For more information on programming see manual display LCD600/601



LCD600 / LCD601: appropriate programming menu 1 and 5 of the display:
Set the number of floor for each display (32 = function off)
menu 1, and activate the next direction to menu 5 (YES 5 =menu)
For more information on programming see
Manual display LCD600/601

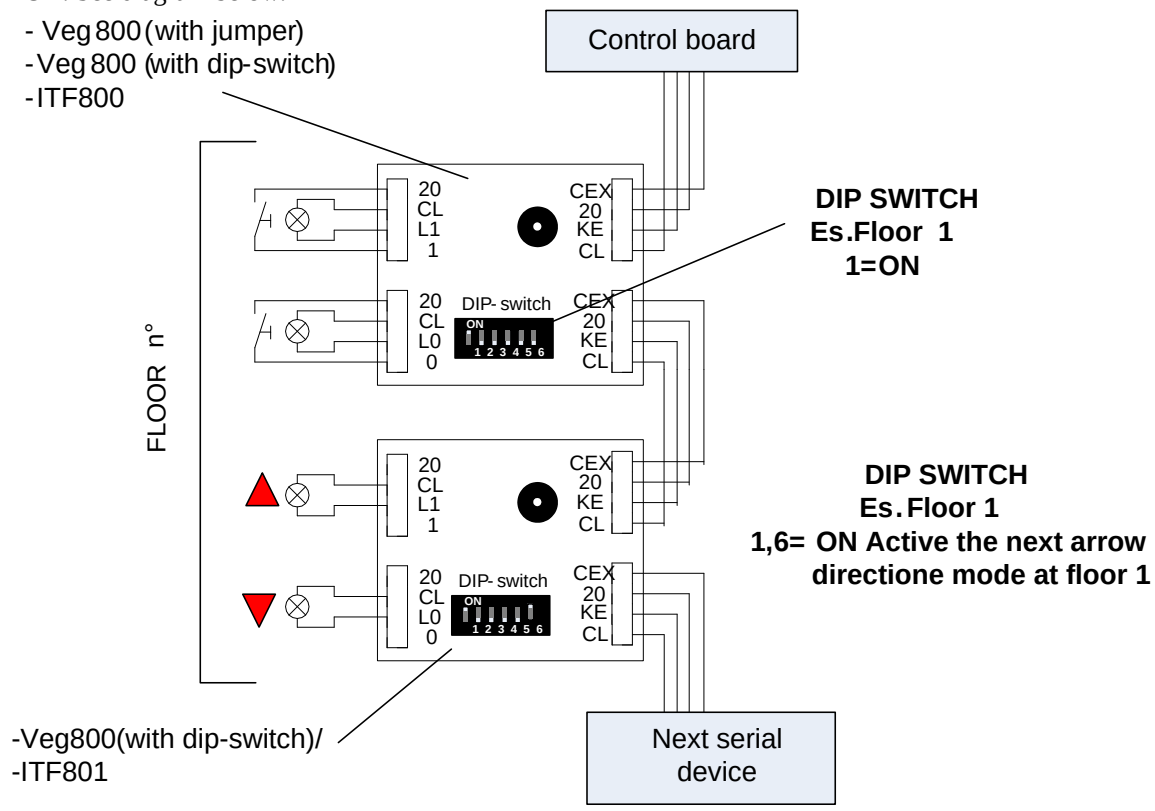
LCD4001: It’s possible to program the floor where the display is mounted by means of dip-switch.Off, Off, Off, Off, Off, On = First floor). To active the arrow next direction you need to set the dip switch 6 oN.

LCD550-A: Appropriate programming menu 1 of the display

VEG800 (dip switch) / ITF801

It can be connected to the outputs of a bright Veg800 (version with the dip-switch) or ITF801 to operate the arrow next direction.
If you also use the calls to the plans must need another serial VEG800/ITF800

Program the on-floor or ITF800 Veg800 serial devices (see Section 9.4 for programming)
The ITF801 always work as arrow next direction, you just program the floor,
on VEG800 you can enable this feature by configuring the number of floor with the DIP-switch with 6 = ON. See diagram below.



9.3 CAR LIGHTING

There are many way to light the car:

- light can be always ON
- light can turn ON or OFF together with reserved signal. In this case a relay has to be connected to OCC output and its relay contacts turn ON the car light
- light can turn OFF after a time higher than reserved signal time through one of the general TIMER (e.g. using TMR3, a relay connected to CPF output to manage the light and with FS3 input activation with reserved signal)

9.4 LIGHTS

Car and landing lights have many different meaning depending on plant type:

- **Automatic Single call system**
  - Car lights show the ARRIVAL;
  - Down landing lights show the RESERVED SIGNAL;
  - Up landing lights show the ARRIVAL;
- **Collective call system**
  - Both car and up/down landing lights show the RESERVATION.
- **'Man Present' call system**
  - Car lights show the ARRIVAL
  - Down landing lights show the RESERVED signal;
  - Position shows the presence

9.5 RESERVED SIGNAL

Reserved signal turns ON with following conditions:

- after first call
- entering in the car (when CCO is close) and even when there are over load or full load
- during INSPECTION SERVICE mode
- during INTERNAL mode

- during control board programming (PRESET enabling)
- during plant HALT

The reserved signal turns OFF after a **TOC** time (programmable from **'0' to '99'** tenths of second at **add. 24**) from the end of last service.

9.6 SKIPPING THE FLOOR INDICATION ON SERIAL DISPLAY

In systems where there is a floor with no stops it possible to skip the indication of that floor in the serial display. To enable this function it is necessary to program the number of the floor to skip floor plus 50 (considering always the lower floor as floor number 0) at address 39 (NPM) and add 1 to the value programmed ad address 33 (NS).For example, if we have a system with 6 floors (position from 0 to 5) but without stops at floor 3 (counted always starting from 0), it is possible to skip the visualization of the floor position in the serial display, passing from position 2 to 4 in up direction and from position 4 to 2 in down direction, programming the value 53 (3 + 50) at add. 39 and the value 11 (10 + 1) at add. 33.

NOTE 1: if this function is enabled it's not possible use the fire service operation and the firefighters operation.

NOTA 2: This function has no effect on the display LCDXX, you can change the characters directly on the display (on the menu).

10. OPERATIONS

10.1 AUTOMATIC RELEVELLING

It's a manoeuvre that permits an accuracy levelling of car when this one is stopped at landing:

- if IF signal is deactivated while ICV is not yet, TS contactor is activated
- if ICV signal is deactivated while IF is not yet, TD contactor is activated.

If this manoeuvre's duration is greater then RIP programmable time (add. 30), plant is blocked permanently with **fault code '82'**.

Relevelling is enabled both with close doors (programming '16'at the add. 62) and with open doors (CS open)

This operation doesn't carry out if:

- Plant is blocked for the occurrence of **fault '82'**
- Plant is blocked for the occurrence of **fault '83'**
- Contactor are jammed.
- Inspection or Emergency service mode is active.
- CS1 input signal kept opened (when safety circuit is enabled, do not programming value '+4' at address 62)
- ALT button pushed (then if plant is in overrun fault).
- If APA input controls relevelling operations ('+8' at add. 62) but it is opened, that is the car is out of relevelling zone.
- In Programming mode (PRESET mode).

10.2 EMERGENCY SERVICE MODE

It is activated when there is a power cut. It is suited both for rope and hydraulic plants.
Operation begins when EM input is closed to GND and avoiding the control board power off (wiring a battery to BAT connector). This operation works both in hydraulic plant and in rope plant.
There will be the following situations for this operation:

- In inspection service mode it is disabled.
- It is enabled even in systems without head and pit.
- Safety inputs must be powered on during the emergency service mode.
- In rope systems, programming the value '98' at address 31, the stop delay (TRIF) is disabled during Emergency Manoeuvre.
- FS3 change's control is disabled.
- Movable platform is deactivated (CCO).
- car overload (CCS) sensors are deactivated.
- all displays are switched off except for the car's one.
- The Alarms for the serial communications are disabled: Alarm '62 and Alarm '63'.
- Synchronising sensors faults are deactivated: fault '55' '54'.
- Run direction control is deactivated: fault '84'.
- Doors checking are deactivated: fault '50', '61', '48' and '49'.
- When EM is released, after the car has finished the current action, emergency service mode is disabled.

10.2.1 Emergency Service Mode in Hydraulic Plant

The operation depends on the value programmed at the add. 43 (PPE).

- **PPE = 32** ⇒ the car carry out a synchronising operation excluding sensors controls, goes to the landing 0 until RD synchronising sensors; then it stops and commands the opening of the main entrance for all the busy signal time.
- **PPE < 32** and **PPE < plant's number of stops**:
  - If the car is in stop zone, opens the doors;
  - If the car is halted at an upper level of PPE, reaches it with a regular stop;
  - If the car is out of floor, under PPE floor, reaches the lower level and opens the doors.
- **PPE < 32** and **PPE > plant's number of stops** ⇒ the car goes down, stops at the nearest floor and opens the doors.

Indipending on PPE value, during the emergency service mode, the RE-LEVELLING is always deactivated.

10.2.2 Emergency Service Mode in Rope Plant

The operation depends on the value programmed at the add. 43 (PPE).

- **PPE = 32** ⇒ the car goes down, stops at the first IF and commands the doors opening for the busy signal time. In the rope plants at 2 speed TG is commanded instead TP.
- **PPE = 31** ⇒ will be enabled the emergency operation with the search for the optimum direction of motion. The operation is described below:
  - If the EM input is activated when the car is moving and the ALT signal is not interrupted, the car continues to move (until reaches the first floor that meets) in the same direction in which it was already moving;
  - If the ALT signal is interrupted (this will cause the stop of the car) before the activation of the EM input, the control board activates the search for the optimum direction of motion. When the ALT signal comes back, thje control board try to move the car in one of the two directions and at each interruption and return of ALT signal the control board reverses the direction in which attempts to move the car.. To interrupt the ALT signal to search for the optimum direction of motion it is necessary to connect a control contact of the emergency device in serie s to ALT input. So the ALT input is interrupted if there is an overload of the emergency device (the overload occurs when the car moves in the unfavourable direction).

  Can be programmed a waiting time for a new attempt after the interruption and return of ALT signal. This waiting time is programmable at address 30 (RIP).
  If the car never reaches the floor when moving in one direction, the control board stops the operation after a timeout time programmable at address 27 even if the ALT signal was not interrupted, and after the time programmed at address 30 makes a new attempt in the opposite direction.
- **PPE < 31** and **PPE < plant's number of stops:**
  - If the car is in stop zone, opens the doors;
  - If the car is halted at an upper level of PPE, reaches it with a regular stop;
  - If the car is out of floor, under PPE floor, reaches the lower level and opens the doors.
- **PPE < 31** and **PPE > plant's number of stops** ⇒ the car goes down, stops at the nearest floor and opens the doors.

During the emergency service mode, the synchronising contactors are always deactivated and the low speed is forced.

10.3 PLATFORM MANAGEMENT

To enable platform management or the "Man Present" call managment, must be programmed the value **'2' at address 63** and wire separately landing calls and car calls (like a down collective plant) .
For the correct working of platform lifts with 'Man Present' Mode you must enable the multiplexing of the call's inputs adding value '+64' at address 61.
This management includes the following actions:

- Car runs only if call button (car or landing ones) is kept pressed
- All landing buttons are ignored when car runs for a car call
- When car is busy for an external call, other landing calls are ignored until the corresponding call button is pressed. If the current call button is released, car is still reserved for this call until car reserved signal is active, but car stops when the call button is released.

The control board is able to manage variations of these operations. In fact, if the third entrance is not enabled ('0' at add. 3), INT input signal is the activation command of this service mode in this way:

- If INT is always connected to GND: car and landing calls are managed like single call plant's ones
- If INT is connected to GND when car is not reserved: car calls are served like "man-present" service's ones and landing calls are served like automatic single call system's ones. To connect INT to GND when car is not reserved, it is possible to wire this input to:
  - A "presence in car" sensor (car reserved).
  - A car call button circuit properly configured.
  - To the AP2 output signal, that is, in this condition, active (closed to GND) when plant is not reserved or when landing call is active.
- If INT input is always open: car and landing calls are managed like "man-present" service's ones.

10.3.1 Electric Platforms

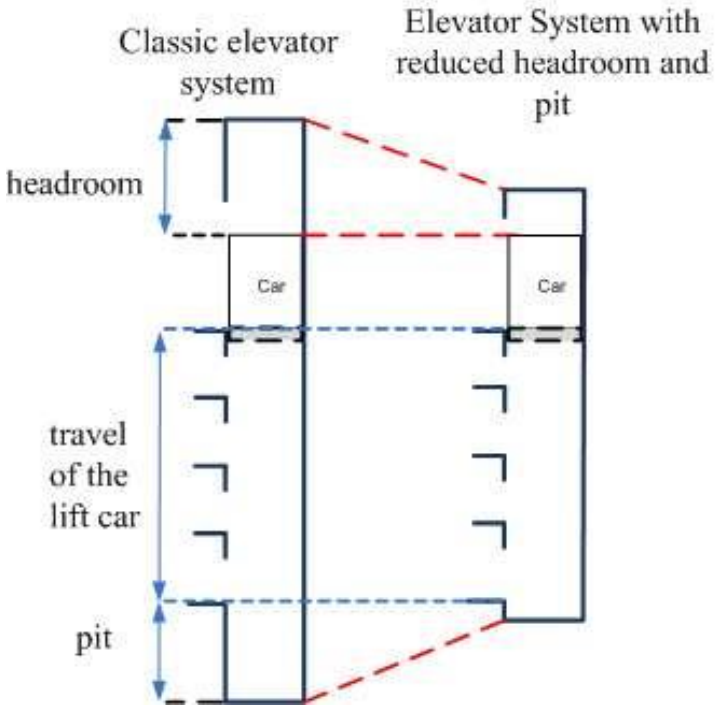
In case of elevating platform powered by an electric winch controlled by VVVF you need to:

- **PROGRAM ROPE SYSTEM** (address 6)
  - Programming at address 25 (TST time) a value greather than 70, it is possibile to delay (delay = (TST – 70) tenths of a second) the disactivation of contactors (TP output) compared to the commands of the VVVF (TS and TD outputs) to allow the ramp for the stop. Otherwise can be used the Stop Delay (TRIF) as for the rope systems. With this functions it is possible to have a soft stop (the stops is completed with the ramp of the VVVF even if the call push-button is released).
  - At address 1 it is possibile to choose if you want a one speed system or a two speed system.

- **MANAGMENT OF THE SAFETY CIRCUIT.**
  - At address 31 program the value ‘98’. So the RU output is used to enable the safety circuit to bypass the locks of the external door at the landing. With this set up the timer TMR1 is not available.
  - At address 62 add the value ‘+8’ to enable the APA input. Moreover can be enabled the check of the safety circuit on input CS1 adding the value ‘+4’ at address 62.

10.4 REDUCED HEADROOM AND PIT MANAGMENT.

When a building has realization problems related to lack of space or special structural and regulatory constraints, you can install special equipment made in accordance with local rules,



To perform maintenance in the elevator shaft you need:

- Enter in maintenance working mode (activate the input MAN);
- You can move the car with PSM and PDM maintenance buttons
- Press the Stop button (in the pit or in the head) and insert the safety stakes
- Carry out any maintenance;
- Remove the safety stakes and re-enable the Stop button;
- Exit the maintenance mode and enter the "normal". The board will show the code "88";
- To reset the system press the SPEEDY button for 3 seconds at least

10.5 PRIORITY CALL

A priority call can be made from one of the floors by closing the external key on that floor. You can make a priority call from all floors by reusing the same input “INT” used for the “internal mode” and you can activated it following the same paragraph.It is activated if:

-You program “0” in address 3, otherwise “INT” is the door photodetector for third entrance:

-“Man present mode” is not activated by not programming +2 in address 63 throught a proper wiring, as showed in the picture below.

After a priority call all previous calls are deleted, the open doors parking with close door activated and every type of automatic return is deactivated.

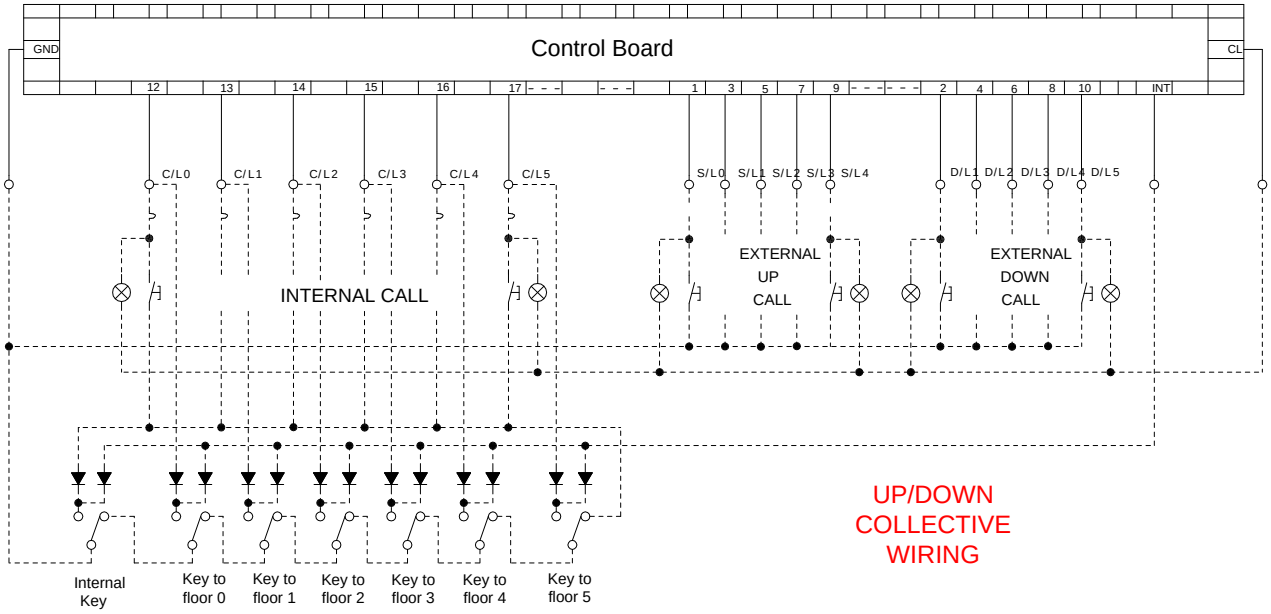
The first priority call excludes all the others that follow.

Here is what after a priority call can happened:

- If the car is going in an opposite direction of the first floor where the call has been made and then it moves towards the priority call floor.
- If the car is stationary, it immediately moves towards the priority call floor when the car reaches the priority call floor, you can close the internal key and move the car with an internal mode after removing the external key. In this way, every other priority call will be ignored.

NOTE: if the priority mode is from a single floor, you can:

1) Use the fire service mode to manage a priority call from 1 floor
2) Use the classic “internal mode”



10.6 INTERNAL MODE

This operation is enabled closing INT input signal to GND after programming **'0' at address 3** and if "man-present" service is disabled (not programming **'+2' at add. 63)**.
This activation causes these actions:

- cancellation of all reservations (car one and landing one);
- the car remains reserved with open doors;
- accept a car calls at a time.

10.7 MOUNTING OPERATION

To enable inspection mode during plant mounting phase, it is necessary to connect RS and RD connectors to GND and to connect the EXC, ALT, CS and CT connectors to manouvre voltage.
ùEnter in Inspection service mode and so press the PSM push button to go up or PDM to go down.
The car speed in inspection mode will be the one programmed at address 4.
NOTE: CAR DO NOT STOP at extreme landing if you keep pressed the push button becouse synchronising sensors are not there.

10.8 INSPECTION SERVICE MODE

Inspection mode is activated when MAN input signal is connected to GND or moving the switch present on the programming keypad DISP900 in MAN position. If the inspection mode is activated through the switch of the programming keypad, is possible to move the car with the buttons UP (to move the car in up direction) and DW (to move the car in down direction) of DISP900.
NOTE: The inspection mode activated through the inspection panel on the roof of the car (activated on MAN Input) is prioritary compared with the inspection mode activated through the switch of the programming keypad DISP900. So if the MAN input is active, it is not possibile to move the car in Inspection Mode using the buttons UP and DW of the programming Keypad DISP900.
At the address 62 MAN input can be programmed normally closed (**'+1'** => the Inspection Mode is active when the MAN input is open) or normally open (**do not program '+1'** => the Inspection Mode is active when the MAN input is closed).
This type of manoeuvre is carried out in this way:

- All reservation/calls are cancelled (current e future ones);
- Car can move only keeping pressed the PDM (down direction run) or PSM (up direction run) button placed on the car roof. Pressing at the same time these two buttons, car is stopped. Buttons are enabled after RITING programmable time (add.45) since the car stopping, that is when contactors trip and buttons are released;
- Door closing is activated after the PDM or PSM pressure if photosensor, PAP, car load complete and ALT signals are inactive. When inspection service is deactivated, doors are opened if car is at the landing.
- Car can run at high speed ('0' or '2' at add. 4) or low speed ('1' or '3'at add. 4) and it can stop (also when PDM or PSM buttons are pressed) on synchronizing sensors ('0' or '1' at add. 4) or at the extreme floor on IF sensor ('2' or '3' at add. 4);
- During this service are not active:
  - The Alarms for the serial communications: Alarm '62 and Alarm '63'.
  - Maximum car run time;

- High speed, in inspection mode car can move only at running speed V1P;
- Resrved car sensor (presence in car sensor or MOVABLE PLATFORM);
- relevelling;
- emergency service;
- door pre-opening;
- FS3 change's checking;

➢ At the end of inspection service mode, after the operator had left the car roof and the door had been closed, the car stands until a new call is made (a car call or a landing call).

NOTE: If plant has 3 speeds with immediate halt (programming '4' or '12' at add. 5), when the first call is done, automatic car call at an extreme landing is activated to avoid wrong floors' count.

10.8.1 Hand operation

Activating MAN and CCS together, car is moved to the nearest floor in low speed, with PDM/PSM push buttons. Car is stopped even if the push button remains active. Once car is stopped, doors are opened.

10.9 SYNCRONIZING/PHASING

After an outage, the system has to synchronize itself, except if car is already at an extreme landing. It is possible to choose the extreme landing where to go at **add. 19**. If there is a car sensor faulty (sensor doesn't open at extreme landing), plant tries to phase on the opposite extreme landing.
Phasing can start automatically, that is without pressing any call's push buttons ('**0' or '4' at the add. 13**) or **manually**, that is after pressing a call push button ('**8' or '12' at add. 13**). When there are manual doors it is necessary to program even the manual phasing mode.
In an **hydraulic system, if** the car is stopped at landing 'zero' out of floor but in RD zone, at power on, car goes up until it leaves the synchronizing sensor and then it goes back to landing 'zero'. If you have programmed parking with close doors, doors opening is disabled.

10.10 FIRE SERVICE

There are two operating mode: FIRE SERVICE mode and FIREFIGHTERS SERVICE mode.

10.10.1 Fire Service Mode

This operation is enabled only when parameter at **address 39 (NPM)** is set at a **value < '32'**.
If NPM = 32, fire service mode is always disabled.
In order to activate this service mode, it is possible use one of these input signals:

➢ FS3, programming '96', '97' or '98' at address 29 (CHF);
➢ PCP, otherwise (when FS3 is used for other function and if PCP is not used yet for doors closing push button).

When this signal is activated:

- All calls are cancelled;
- PAP (opening doors push button) remains active;
- An automatic call to NPM landing (add.39) is done after the end of the call in progress, to avoid sudden car u-turn.
- If with manual doors or a manual command
  -Open, remain stop at the floor;
  -Close, go to designed floor
- If is used the FS3 input:An elevator that runs from the designated floor, it stops on the first floor as possible, reverse direction and go without opening the doors to floor designated NPM (add.39).
  If is used the PCP input: An elevator that runs from the designated floor, complete the run, open and close the doors and go to floor designed NPN (add.39).
- With FS3 input:An elevator in moving in direction of the designated floor ,continues without stopping, until at floor designed.
  With PCP input: An elevator in moving in direction of the designated floor , complete the run, open and close the doors and go to floor designed NPN (add.39).
- If you block the intervention of a safety device, remain blocked.
- When the car arrives to the designated floor, must remain in parking with automatic doors open and be removed from the normal working;
- The manual doors must be unlocked and the elevator must be removed rom the normal working.

10.10.2 Firefighters Service Mode (EN 81-70)

To enable firefighters service mode CHF parameter (**add.29**) has to be programmed with '**96**' value.
This operation is enabled only when parameter at **address 39 (NPM)** is set at a **value < '32'**.
If NPM = 32 or CHF is different from '96', firefighters service mode is always disabled.

In accordance with **EN 81 –72 July 2003 – 72 part STANDARDS,** this operation is divided into 2 phases: the first one guarantees the shorter time for the car to reach the NPM floor (in case of FIRE) to be used from firefighters; the second one manages the car when car is under firefighters control.
Setting CHF = '**96**':

- Activation of forced closing and alarm horn on **CPF** output.
- FS3 is used like **Phase 1** activation command: 'priority recall for the firefighters lift'. (**fire service mode**)
- FS3 + INT are used like **Phase 2** activation commands: 'use of the lift under firefighters control'. (**firefighters service mode**)
- Check of the second key in car with INT input.

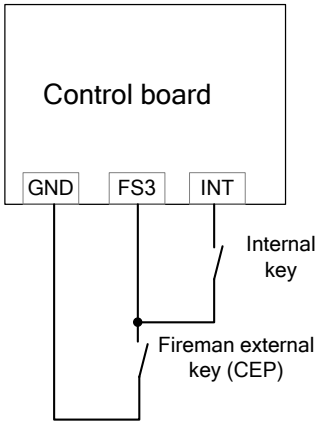
The operation mode can be resumed with the following points:

- Fire service mode is used for Phase 1 to guarantee the priority recall for firefighters landing (in this case is fire-fighting). If car is running in opposite direction in respect to the firefighters floor, it is stopped at first floor that it founds, don't open the doors and then leaves for firefighters landing, otherwise reaches the firefighters landing without intermediate stops.
- If the car is standing with open doors at a parking floor different from firefighters floor, or if doors are halted, when firefighters service mode is activated, after 2 minutes that doors remains open, a forced closing will be activated. When the door is closed, the car will leave for firefighters landing.
- Phase 2, car is under control of firefighters; This phase is activated just at firefighters landing arrival and when INT and CEP (FS3 connector) are active. Phase 2 needs a particular firefighter lift switches management as described below:

INT **Internal switch** **(optional in car)**	**CEP** **External switch** **(at fire-fighting landing)**	**Description**
0	0	Blocked plant with open doors, if it is at fire-fighting landing. If this situation remains for a time > 5 seconds, plant goes back to the standard mode.
0	1	Blocked plant with open doors
1	0	Internal mode.
1	1	Standard fire-fighting mode (man present doors opening), closed doors parking

If internal key is disabled, system is blocked with open doors , otherwise if this key is set at '1', system works in compliance with rule, that is with 'man present' doors opening.
The second key (the one in the car) is optional, so there are system with only one key. In this case will be necessary to connect together FS3 and INT, so 00 and 11 will be the only possible combinations.

Once arrived at desired landing, doors remain closed. Only with a constant pressure of PAP push-button doors are opened, but if the push button is left before the complete doors opening, doors will close. When doors are completely open, they remains open until a new car's call is made.

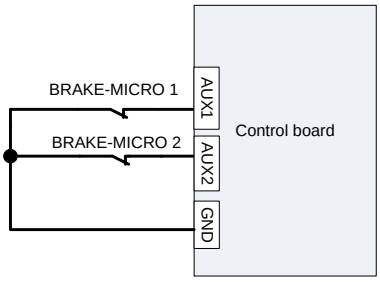


10.11 AMENDAMENT A3

In accordance with EN81-1/2:1998 + A3:2009 and EN81-21 as of January 2012 all new lifts must be equipped with a safety device to stop unintended car movement away from the landing with the landing door not in the locked position and the car door not in the closed position.

- **Rope elevator (Programming "0" or "32" at address 6)**
  A3 Function is active programming "+64" at address 63

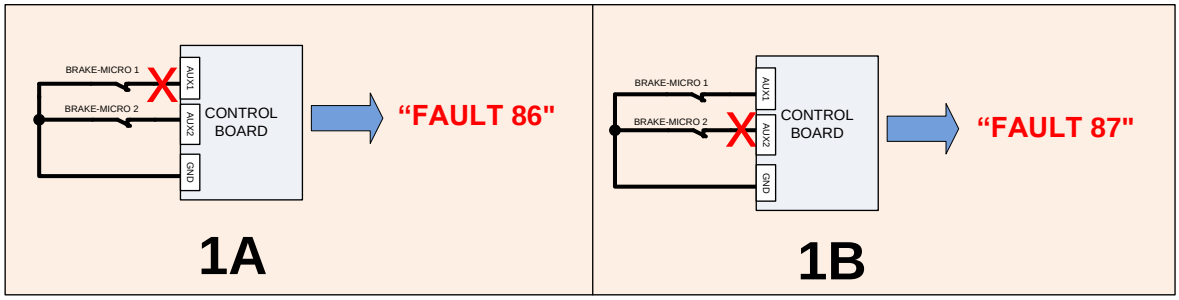
Application diagram



- The correct control of the brakes is done by connecting a normally closed contact of the brakes on the inputs AUX1, AUX2.
- Both inputs must be closed with elevator stopped, while both are open when it moves.
- The control use programmable delays at address "45" (on inputs AUX1, AUX2) and at address "44" (delay on the control of the brakes after the start or stop).
- If the contacts of the brakes don't open on the run, the fault is generated only after the stop.
- If, after the stop, both brakes don't close, the opening of doors is no enabled.
- The fault is different for the two brakes: "86 failure for the brake connected at input AUX1 and "87" failure for the brake connected at input "AUX 2".
- To unlock the system, hold SPEEDY push-button for a few seconds.

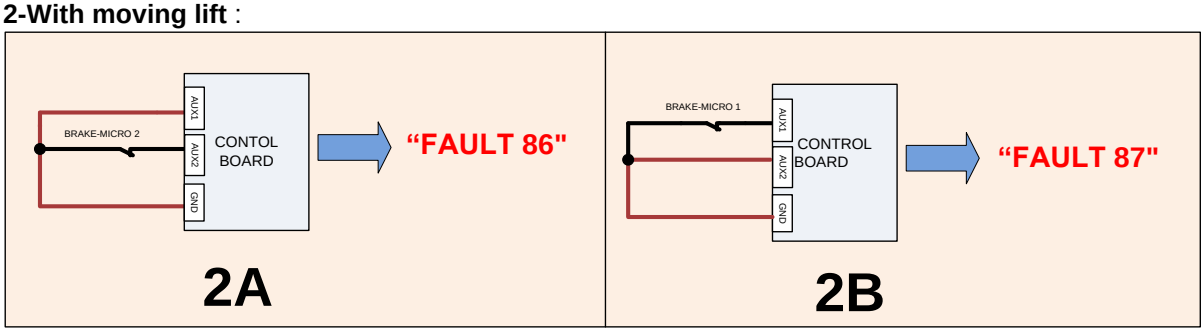
STARTUP AND SEMESTRAL CHECK PROCEDURE

- **1- with stop lift**



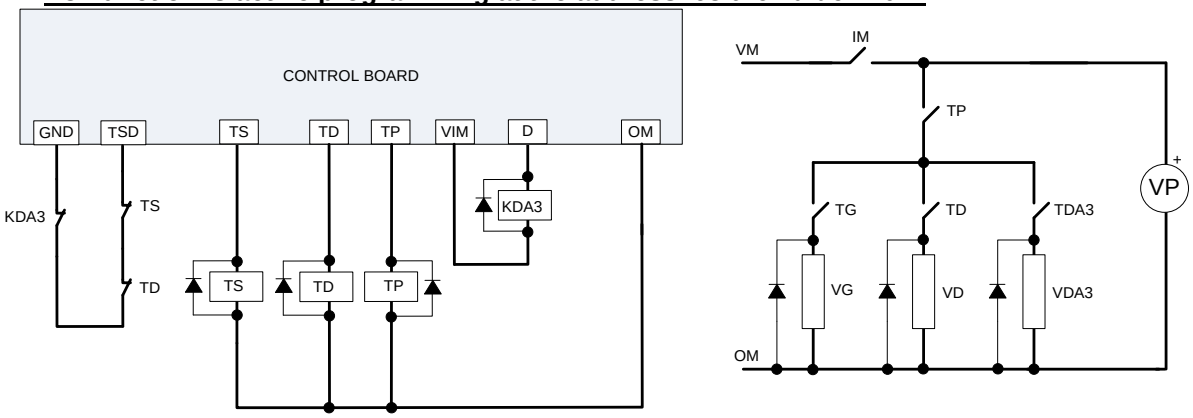
1A-Disconnect from the control board the contact MICRO 1 of the brake (AUX1 input) and verify that on the display of the control board is signaled the fault "86";
1B-Disconnect from the control board the contact MICRO 2 of the brake (AUX2 input) and verify that on the display of the control board is signaled the fault "87".

- **2-With moving lift** :



2A-connect the input relative to the MICRO 1 contact of the brake (**AUX1 input**) to "GND", move the elevator and check that on the display of the control board is signaled the fault "86";
2B-connect the input relative to the MICRO 2 contact of the brake (AUX2 Input") to "GND", move the elevator and check that on the display of the control board is signaled the fault "87".

➢ **HYDRAULIC LIFT (programming "16" or "48" at the address 6);**
A3 Function is active programming at the address 63 the value "+64"



The D output of the control board commands a new contactor, KDA3, that feeds the second descent valve. This valve is piloted by the contacts of the new contactor, in series with the contacts of the run main contactor controlled by the TP output (such as the normal descent valve).
The state off of the KDA3 contactor is controlled by the normal TSD input together with the state of normal contactors TD and TS. (as shown on the diagram above)

- The valve VDA3:
  - Is disabled when the system is stopped or running upward;
  - Is activated together with the VD valve at every start for a downward run or a down relevelling.

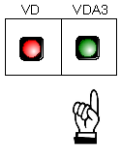
• At power on, after rephasing (back at the lowest floor) and after that the busy signal goes off (about 5 seconds), the board immediately executes the control of the valve. The control is done only at the lowest floor.
• Before enabling the valves, the board checks that the elevator is correctly stopped at the floor and that contacts connected on APG CPP and TSD input are closed (normally closed).
• First is commanded the descent valve (TD) by controlling the holding of the auxiliary contactor (D), then the board activates the auxiliary contactor (D) by controlling the holding of the descent valve (TD).

- Control procedure can be ended:
  - After 10 seconds (Test OK);
  - At the exit from the floor (Test KO);
  - Deferring it, if the control board enters in programming mode or fault is active, or with the activation of one or more of the following inputs: **EM, EXC, ALT, MAN** and **PAP**.

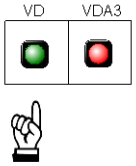
• If the check fails (exiting by the stop zone) is rerun after a re-leveling (wait 10 seconds) and, if the check fails again, the board goes to block signaling fault "86" if the check of the TD output fails (when testing the A3 auxiliary valve test) or fault 87 if the check of the D output fails (when testing VD descent valve).
• Once you have executed correctly and without error the checks of the valves, the test will be disabled for at least 16 hours. After that time, if the elevator is already at the lowest stop level, the test is triggered, otherwise, after 24 hours is forced a call at the lowest floor and the check is run.
• To unlock the system hold SPEEDY push-button for a few seconds.

STARTUP AND SEMESTRAL CHECK PROCEDURE

1. Turn on and off the power of the control board to start the auto-test;
2. The control board rephases at the lowest floor;
3. Make sure that, first the VD valve activates (TD output) and after about 10 seconds the VD valve goes off and VDA3 valve activates (D output).The procedure must be terminated without failure;
4. Repeat step 1:
   a) On activation of the valve VD (output TD) simulate the failure of VDA3 valve (output D), manually opening the VDA3 valve (causing the exit from the floor zone);
   b) The elevator will start in down direction, just exiting from the stop zone is executed a re-leveling;
   c) Reopen manually VDA3 valve (causing a new exit from the floor zone);
   d) Verify that the control board signals "86" fault;
   e) The board is blocked, press the SPEEDY for at least 2 seconds to unlock it



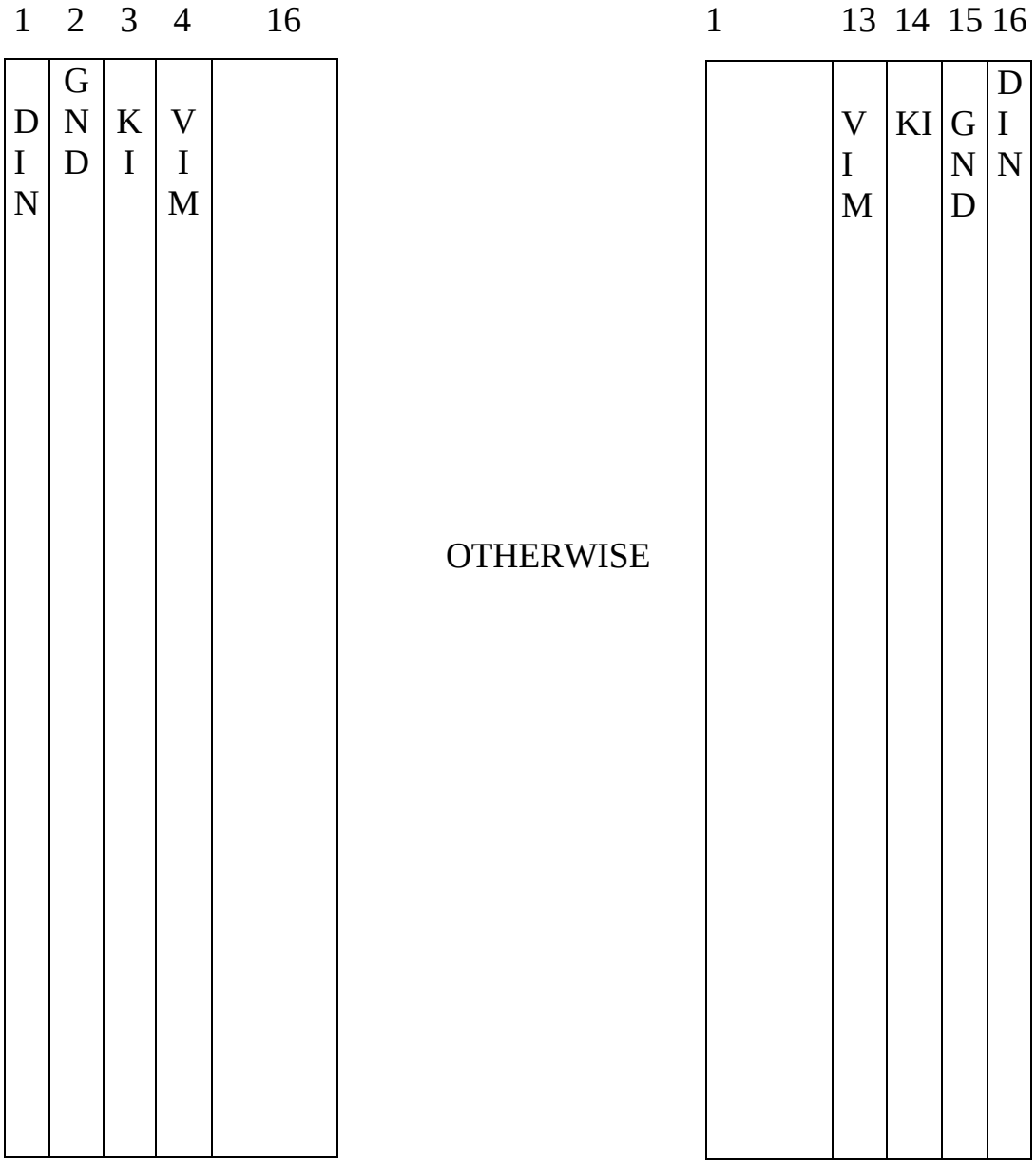
5. Repeat step 1.
   a) On activation of the valve VDA3 (output D) simulate the failure of VD valve (output TD), manually opening the VD valve (causing the exit from the floor zone).
   b) The elevator will start in down direction, just exiting from the stop zone is executed a re-leveling;
   c) Reopen manually VD valve;
   d) Verify that the control board signals a "fault 87"
   e) The board is blocked, press the SPEEDY for at least 2 seconds to unlock it.



11. SERIAL EXPANSIONS

11.1 WIRINGS

In order to minimize noise and interferences on communication between control board and serial board, it is important to assign the 4 wires of the multipole falt cable as shown in the figure below.



It is also good to keep the wires that carry the power supply and the commands to the door operator on the others side of the falt cable compared to the wires that carry serial communication, especially in the case of operators doors at 380 Vac. In these cases (with 380Vac door operators) it is appropriate to take precautions with special filtering to prevent disturbance to the serial communication between the control board and the peripheral boards.

Serial Display

TFT 5.7”

SERCAR_LCD2.4_03

SERCAR_LCD2.4/ SERCAR SCREEN LCD4001

LCD600

LCD601

ICARO_DSR

FLOORDIS

Car

Signalling	**LCD600-601**	**Sercar_lcd 2.4**	**Lcd4001/Sercar_screen/ Icaro_DSR/Floordis**	**TFT 5.7”-TFT210**
OUT OF SERVICE	OUT OF SERVICE icon	“FS”	FS	“OUT OF SERVICE” icon
MAINTENANCE	“MA”	“MA”	MA	“Manuteinance” icon
GONG	…	gong		Gong
OVERLOAD	“Ooverload” icon	“SC”+(Icon+ buzzer)	SC	“Overload” icon
Full load	“C”	…	…	“Full load” icon
ALARM ACTIVE	“alarm active” icon	…	…	“Alarm active” icon
ALARM RECEIVE	…	….	…	“Alarm receive” icon
FIREMAN	…	…	…	“Fireman” icon
PRIORITY CALL	…	…	…	“Riserve” icon
EMERGENCY	…	EM+icon Overload+ Buzzer	EM	Emergency light + Emergeny icon

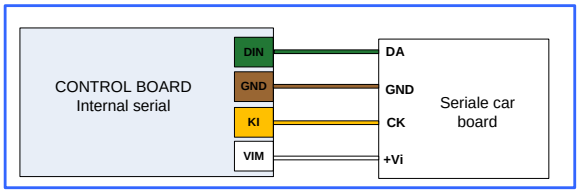
NOTE: * Scrolling text

Floor

Signalling	**Sercar lcd_2.4/ sercar screen**	**LCD4001/ Icaro_Dsr/ Floordis**	**LCD600-601**	**TFT 5.7”-TFT210**
OUT OF SERVICE	“F”	“F”	OUT OF SERVICE	“OUT OF SERVICE” icon
MAINTENANCE	“F”	“F”	OUT OF SERVICE	“Manuteinance” icon
GONG	…	Only in mode next direction arrow	Only in mode next direction arrow	…
OVERLOAD	“C”	“C”	“Ooverload” icon	“Overload” icon
Full load	“C”	“C”	“Ooverload” icon	“Full load” icon
ALLARM ACTIVE	“A”	“A”	“alarm active” icon	“Alarm active” icon
ALLARM RECEIVE	…	…	…	“Alarm receive” icon
FIREMAN	“P”	“P”	“P”	“Fireman” icon
PRIORITY CALL	“P”	“P”	“P”	“Riserve” icon
EMERGENCY	…	…	…	Emergency light + Emergeny icon

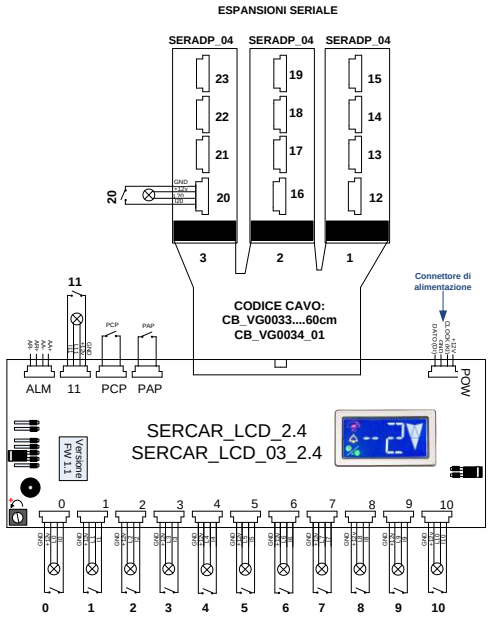
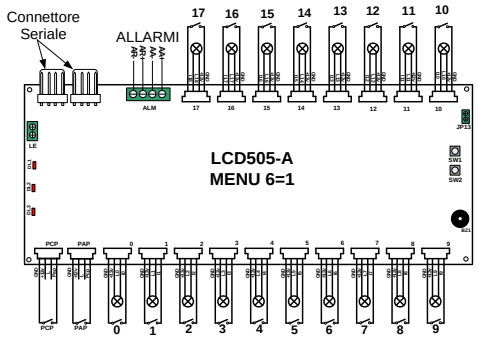
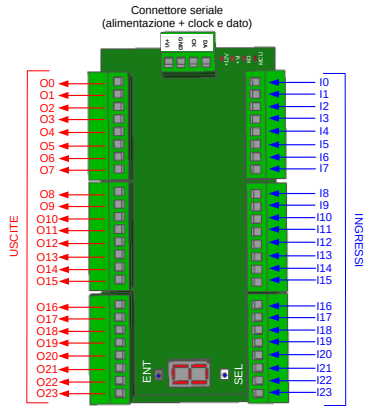
11.2 CAR'S SERIALS (VEG400, SERCAR_LCD _2.3)

CONNECTION WITH THE CONTROL BOARD



NOTE: In order to minimize noise and interferences on communication between control board and serial board, it is important to assign the 4 wires of the multipole falt cable. The GND must pass between the clock and data.

SERIAL DEVICES:

CODES	ADDRESS	I/O aviable	Display	Collection calls
SERCAR  ESPANSIONI SERIALE SERADP_04 SERADP_04 SERADP_04 CODICE CAVO: CB_VG0033....60cm CB_VG0034_01 Connettore di alimentazione ALM 11 PCP PAP POW SERCAR_LCD_2.4 SERCAR_LCD_03_2.4 Versione FW 1.1	Fix to 0	12 + (3 expansions to 4 inputs and outputs each) SERADP04: 4 AMP SERADP_03: 3 expansion modules with screw connectors. PAP e PCP disponibili fino a 13 fermate	YES tricolor	YES
LCD505-A 	programmable 0/1	18 PAP/ PCP available up to 13 stops	YES tricolor	YES
ITF400 	programmable 0/1	24	NO	YES
KITTI	Fix to 1	14 Input 7 output	NO	NO

MAPPING 1 (2 to 32 Stops): DISPLAY (Optional) + Card cab roof for service signals

ADDRESS	Recommended value	Description
5	08/12	Arriving with blinking light
8	00/02	Arrival + Position (serial outputs type A)
11	64	Serial wiring enabled
60	From 1 to 15	Mapping 1
61	0	No +2 (Car serial board exclusion)

ADDRESS 0- opzional (display or TF400)

	INPUT	OUTPUT	
I/O		Single call	Collective call
0	C0	*P0-A0	LC0-A0
1	C1	*P1-A1	LC1-A1
2	C2	*P2-A2	LC2-A2
3	C3	*P3-A3	LC3-A3
4	C4	*P4-A4	LC4-A4
5	C5	*P5-A5	LC5-A5
6	C6	*P6-A6	LC6-A6
7	C7	*P7-A7	LC7-A7
8	C8	*P8-A8	LC8-A8
9	C9	*P9-A9	LC9-A9
10	C10	*P10-A10	LC10-A10
11	C11	*P11-A11	LC11-A11
12	C12	*P12-A12	LC12-A12
13	C13	*P13-A13	LC13-A13
14	C14	*P14-A14	LC14-A14
15	C15	*P15-A15	LC15-A15
16	C16	*P16-A16	LC16-A16
17	C17	*P17-A17	LC17-A17
18	C18	*P18-A18	LC18-A18
19	C19	*P19-A19	LC19-A19
20	C20	*P20-A20	LC20-A20
21	C21	*P21-A21	LC21-A21
22	C22	*P22-A22	LC22-A22
23	C23	*P23-A23	LC23-A23

ADDRESS 1- obligatory (TF400)

	INPUT	OUTPUT	
I/O		Single call	Collective call
0	C0	*P0-A0	LC0-A0
1	C1	*P1-A1	LC1-A1
2	C2	*P2-A2	LC2-A2
3	C3	*P3-A3	LC3-A3
4	C4	*P4-A4	LC4-A4
5	C5	*P5-A5	LC5-A5
6	C6	*P6-A6	LC6-A6
7	C7	*P7-A7	LC7-A7
8	C8	*P8-A8	LC8-A8
9	C9	*P9-A9	LC9-A9
10	C10	*P10-A10	LC10-A10
11	C11	*P11-A11	LC11-A11
12	C12	*P12-A12	LC12-A12
13	CCS	AP3/DPA**	
14	MAN	CP3/FS**	
15	PCP/CCO	AP2	
16	CM1	CP2/SCP	
17	PAP	AP1	
18	PSM	CP1	
19	PDM	OCC	
20	RS	GONG	
21	RD	SNR	
22	ICV	FS	
23	IF	FD	

Available only up to 13 stops. Above 24 stops the outputs from 0 to 7 are used for calls from 24 to 31.

NOTE: You can use this mapping to cabins with double button panel, up to 13 stops!

LEGEND

Pn= Position at floor n
An= Arrival at floor n
LCn= Car's reservation at floor n

NOTES

- In order to reduce complexity and lenght of site work, control board reads in parallel some signals:: CCC (AL), CCS, MAN, PSM, PDM, RS, RD ;
-* In systems universal you can view the positioning of the cabin (light "fixed"), programming "outputs type A" (0 or 2 at 8). To view also the arrival, program "arrival flashing" (8 or 12 at 5).
** Outputs 13 and 14 (Add. 1), if not programmed, the third side opening (64 the Add. 3), work by disabling the alarm button and out of service.
- In "collective call" systems in order to properly view the arrival, program "arrival flashing" (8 or 12 at 5).
-For IF signals, ICV, RS, RD and CCC in the case are connected in serial sure that we are not excluded from the programming at 38. 38 = 31 all excluded from the serial, 31 = 00 in all serial.
- In the case of access Multiples refer to the table below: Address 1. The outputs A, B, C, D, E are used for the calculation of the position in Binary denied (lowest floor all ON), and they work 14 to 32 floors .

Input	INPUT			OUTPUT
	1 Access	2 Access	3 Access	
8				A
9				B
10	C10	C10	CCC/C10	C
11	C11	CCC/C11	CM3	D
12	CCC/C12	CM2	CM2	E

MAPPING 2 (From 2 to 12 stops):

Address 0 Required + roof Board cabin service signals (optional)

ADDRESS	Recommended value	Description
5	08/12	Arriving with blinking light
8	00/02	Arrival + Position (serial outputs type A)
11	64	Serial wiring enabled
60	From 17 to 31	Mapping 2
61	0	No +2 (Car serial board exclusion)

ADDRESS 0- obligatory (SERCAR o ITF400)			
	INPUT	OUTPUT	
I/O		Single call	Collective call
0	C0	*P0-A0	LC0-A0
1	C1	*P1-A1	LC1-A1
2	C2	*P2-A2	LC2-A2
3	C3	*P3-A3	LC3-A3
4	C4	*P4-A4	LC4-A4
5	C5	*P5-A5	LC5-A5
6	C6	*P6-A6	LC6-A6
7	C7	*P7-A7	LC7-A7
8	C8	*P8-A8	LC8-A8
9	C9	*P9-A9	LC9-A9
10	C10	*P10-A10	LC10-A10
11	C11	*P11-A11	LC11-A11
12	C12	*P12-A12	LC12-A12
13	CCS	AP3	
14	MAN	CP3	
15	PCP/CCO	AP2	
16	CM1	CP2	
17	PAP	AP1	
18	PSM	CP1	
19	PDM	OCC	
20	RS	GONG	
21	RD	SNR	
22	ICV	FS	
23	IF	FD	

POSITION AVAILABLE ONLY WITH 1 ACCESS!		
OUTPUT	From 2 to 8 Fermate (A POLE FOR FLOOR)	From 8 to 12 stops -Binary (61=+32) -Inverted binary (61= no +32 and no+16) -Gray (61=+16 e +32)
8	P0	/
9	P1	/
10	P2	/
11	P3	/
12	P4	A
13	P5	B
14	P6	C
15	P7	D

LEGEND

Pn= Position at floor n

An= Arrival at floor n

LCn= Car's reservation at floor n

NOTES

-in The case of Multiple accesses refer to the table below: Address 1.

Ingresso	INGRESSI		
	1 Accesso	2 Accessi	3 Accessi
10	C10	C10	CCC/C10
11	C11	CCC/C11	CM3
12	CCC/C12	CM2	CM2

- In order to reduce complexity and lenght of site work, control board reads in parallel some signals:: CCC (AL), CCS, MAN, PSM, PDM, RS, RD ;

-* In systems universal you can view the positioning of the cabin (light "fixed"), programming "outputs type A" (0 or 2 at 8). To view also the arrival, program "arrival flashing" (8 or 12 at 5).

- In "collective call" systems in order to properly view the arrival, program "arrival flashing" (8 or 12 at 5).

-For IF signals, ICV, RS, RD and CCC in the case are connected in serial sure that we are not excluded from the programming at 38. 38 = 31 all excluded from the serial, 31 = 00 in all serial.

MAPPING 2 (Up to 16 stops):

ADDRESS 0 Obligatory

ADDRESS	Recommended value	Description
5	08/12	Arriving with blinking light
8	00/02	Arrival + Position (serial outputs type A)
11	64	Serial wiring enabled
60	From 17 to 31	Mapping 2
61	0	No +2 (Car serial board exclusion)

ADDRESS 0- obligatory (SERCAR o ITF400)			
	INPUT	OUTPUT	
I/O		Single call	Collective call
0	C0	*P0-A0	LC0-A0
1	C1	*P1-A1	LC1-A1
2	C2	*P2-A2	LC2-A2
3	C3	*P3-A3	LC3-A3
4	C4	*P4-A4	LC4-A4
5	C5	*P5-A5	LC5-A5
6	C6	*P6-A6	LC6-A6
7	C7	*P7-A7	LC7-A7
8	C8	*P8-A8	LC8-A8
9	C9	*P9-A9	LC9-A9
10	C10	*P10-A10	LC10-A10
11	C11	*P11-A11	LC11-A11
12	C12	*P12-A12	LC12-A12
13	C13	*P13-A13	LC13-A13
14	C14	*P14-A14	LC14-A14
15	C15/PCP/CCO	*P15-A15	LC15-A15
16	CM1	A	
17	PAP	B	
18	PSM	C	
19	PDM	D	
20	RS	GONG	
21	RD	SNR	
22	ICV	FS	
23	IF	FD	

PROGRAMMING (A,B,C,D):
-Binary (61=+32)
-Inverted binary (61= no +32 and no+16)
-Gray (61=+16 e +32)

Number of stops > 16			
I/O	INPUT	OUTPUT	
16	C16	*P16-A16	LC16-A16
17	C17	*P17-A17	LC17-A17
18	C18	*P18-A18	LC18-A18
19	C19	*P19-A19	LC19-A19
20	C20	*P20-A20	LC12-A20
21	C21	*P21-A21	LC21-A21
22	C22	*P22-A22	LC22-A22
23	C23	*P23-A23	LC23-A23

LEGEND

Pn= Position at floor n
An= Arrival at floor n
LCn= Car's reservation at floor n

NOTES

- In order to reduce complexity and lenght of site work, control board reads in parallel some signals:: CCC (AL), CCS, MAN, PSM, PDM, RS, RD ;
-* In systems universal you can view the positioning of the cabin (light "fixed"), programming "outputs type A" (0 or 2 at 8). To view also the arrival, program "arrival flashing" (8 or 12 at 5).
- In "collective call" systems in order to properly view the arrival, program "arrival flashing" (8 or 12 at 5).
-For IF signals, ICV, RS, RD and CCC in the case are connected in serial sure that we are not excluded from the programming at 38. 38 = 31 all excluded from the serial, 31 = 00 in all serial.

MAPPING 2 (From 17 a 32 stop):
Address 0 Obligatory + Card cab roof for service signals

ADDRESS	Recommended value	Description
5	08/12	Arriving with blinking light
8	00/02	Arrival + Position (serial outputs type A)
11	64	Serial wiring enabled
60	From 17 to 31	Mapping 2
61	0	No +2 (Car serial board exclusion)

ADDRESS 0- obligatory (SERCAR o ITF400)

	INPUT	OUTPUT	
I/O		Single call	Collective call
0	C0	*P0-A0	LC0-A0
1	C1	*P1-A1	LC1-A1
2	C2	*P2-A2	LC2-A2
3	C3	*P3-A3	LC3-A3
4	C4	*P4-A4	LC4-A4
5	C5	*P5-A5	LC5-A5
6	C6	*P6-A6	LC6-A6
7	C7	*P7-A7	LC7-A7
8	C8	*P8-A8	LC8-A8
9	C9	*P9-A9	LC9-A9
10	C10	*P10-A10	LC10-A10
11	C11	*P11-A11	LC11-A11
12	C12	*P12-A12	LC12-A12
13	C13	*P13-A13	LC13-A13
14	C14	*P14-A14	LC14-A14
15	C15	*P15-A15	LC15-A15
16	C16	*P16-A16	LC16-A16
17	C17	*P17-A17	LC17-A17
18	C18	*P18-A18	LC18-A18
19	C19	*P19-A19	LC19-A19
20	C20	*P20-A20	LC12-A20
21	C21	*P21-A21	LC21-A21
22	C22	*P22-A22	LC22-A22
23	C23	*P23-A23	LC23-A23

ADDRESS 1- obligatory (SERCAR or ITF400)

	INPUT	OUTPUT	
I/O		Single call	Collective call
0	C25	*P25-A25	LC25-A25
1	C26	*P26-A26	LC26-A26
2	C27	*P27-A27	LC27-A27
3	C28	*P28-A28	LC28-A28
4	C29	*P29-A29	LC29-A29
5	C30	*P30-A30	LC30-A30
6	C31	*P31-A31	LC31-A31
7	/	/	
8	/	/	
9	/	/	
10	/	/	
11	/	/	
12	/	/	
13	/	AP3	
14	/	CP3	
15	/	AP2	
16	/	CP2	
17	/	AP1	
18	/	CP1	
19	/	OCC	
20	/	GONG	
21	/	SNR	
22	/	FS	
23	/	FD	

LEGEND
Pn= Position at floor n
An= Arrival at floor n
LCn= Car's reservation at floor n

NOTES
- In order to reduce complexity and lenght of site work, control board reads in parallel some signals:: CCC (AL), CCS, MAN, PSM, PDM, RS, RD ;
-* In systems universal you can view the positioning of the cabin (light "fixed"), programming "outputs type A" (0 or 2 at 8). To view also the arrival, program "arrival flashing" (8 or 12 at 5).
- In "collective call" systems in order to properly view the arrival, program "arrival flashing" (8 or 12 at 5).
-For IF signals, ICV, RS, RD and CCC in the case are connected in serial sure that we are not excluded from the programming at 38. 38 = 31 all excluded from the serial, 31 = 00 in all serial.

MAPPING 3 KITTI (Up to 24 Fermate):

ADDRESS	Recommended value	Description
5	08/12	Arriving with blinking light
8	00/02	Arrival + Position (serial outputs type A)
11	64	Serial wiring enabled
60	From 33 to 64	Mapping 3
61	0	No +2 (Car serial board exclusion)

ADDRESS 0- opzional (SERCAR o ITF400)			
	INPUT	OUTPUT	
I/O		Single call	Collective call
0	PAP	/	/
1	PCP	CCS	CCS
2	C0	*P0-A0	LC0-A0
3	C1	*P1-A1	LC1-A1
4	C2	*P2-A2	LC2-A2
5	C3	*P3-A3	LC3-A3
6	C4	*P4-A4	LC4-A4
7	C5	*P5-A5	LC5-A5
8	C6	*P6-A6	LC6-A6
9	C7	*P7-A7	LC7-A7
10	C8	*P8-A8	LC8-A8
11	C9	*P9-A9	LC9-A9
12	C10	*P10-A10	LC10-A10
13	C11	*P11-A11	LC11-A11
14	C12	*P12-A12	LC12-A12
15	C13	*P13-A13	LC13-A13
16	C14	*P14-A14	LC14-A14
17	C15	*P15-A15	LC15-A15
18	C16	*P16-A16	LC16-A16
19	C17	*P17-A17	LC17-A17/ OCC
20	C18	*P18-A18	LC18-A18/GONG
21	C19	*P19-A19	LC19-A19/SNR
22	C20	*P20-A20	LC12-A20
23	C21	*P21-A21	LC21-A21

ADDRESS 1 obligatory (KITTY or TF400)			
	INPUT	OUTPUT	
I/O		Single call	Collective call
0	/	/	
1	/	/	
2	/	/	
3	/	/	
4	CCS	AP3	
5	MAN	CP3	
6	PCP/CCO	AP2	
7	CM1	CP2	
8	PAP	AP1	
9	PSM	CP1	
10	PDM	OCC	
11	RS	GONG	
12	RD	SNR	
13	ICV	FS	
14	IF	FD	
15	/	/	
16	/	/	
17	/	/	
18	/	/	
19	/	/	
20	/	/	
21	/	/	
22	/	/	
23	/	/	

Add. 60 (from 33 to 47)	Add. 60 (from 47 to 64) Used for sercar_lcd
LC17-A17	OCC
LC18-A18	GONG
LC19-A19	SNR

LEGEND

Pn= Position at floor n
An= Arrival at floor n
LCn= Car's reservation at floor n

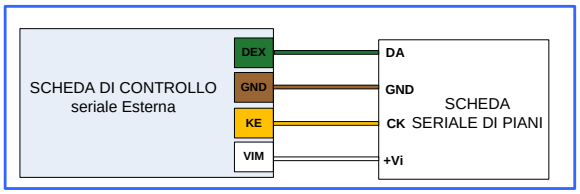
NOTES

- In order to reduce complexity and lenght of site work, control board reads in parallel some signals:: CCC (AL), CCS, MAN, PSM, PDM, RS, RD ;
-* In systems universal you can view the positioning of the cabin (light "fixed"), programming "outputs type A" (0 or 2 at 8). To view also the arrival, program "arrival flashing" (8 or 12 at 5).
- In "collective call" systems in order to properly view the arrival, program "arrival flashing" (8 or 12 at 5).
-For IF signals, ICV, RS, RD and CCC in the case are connected in serial sure that we are not excluded from the programming at 38. 38 = 31 all excluded from the serial, 31 = 00 in all serial.

11.3 EXTERNAL SERIAL

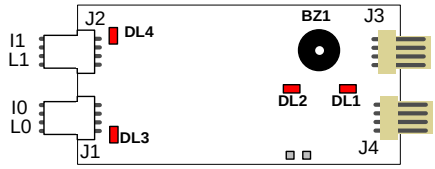
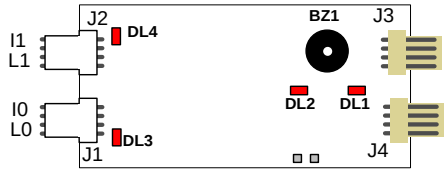
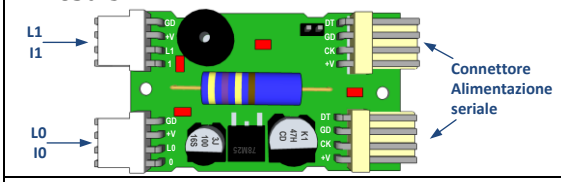
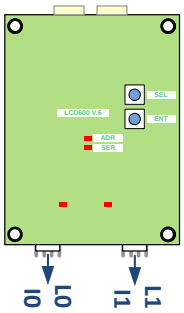
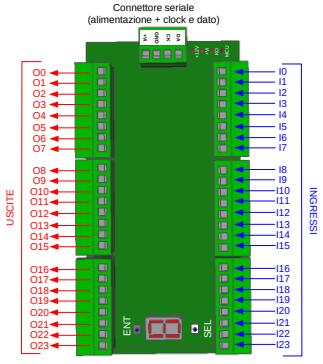
These expansion boards are used to collect the floors' calls and trasmit them through the serial connectin to the control board. In addition, these cards also provide the light signals for the floors .

CONNECTION WITH THE CONTROL BOARD



NOTE: In order to minimize noise and interferences on communication between control board and serial board, it is important to assign the 4 wires of the multipole falt cable. The GND must pass between the clock and data.

SERIAL DEVICES:

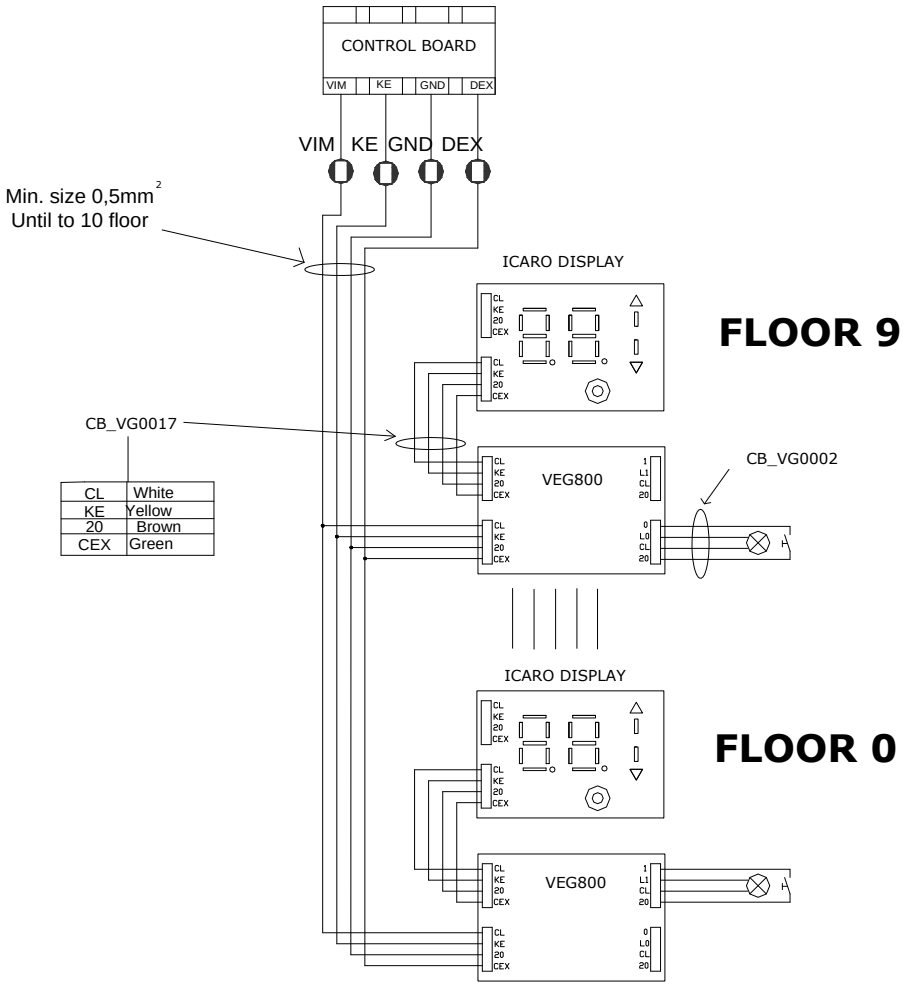
CODES	ADDRESS	I/O aviable	Display	Collection calls
ITF800 	Inputs outputs programmable from 0 to 31. Through jumper	2	NO	YES
ITF801 (Solo Uscite) 	Inputs outputs programmable from 0 to 31. Through jumper For next arrows direction	2	NO	NO
ITF850-SER 	Inputs outputs programmable from 0 to 31. Through jumper	2	NO	YES
LCD600, LCD601 	Inputs outputs programmable from 0 to 31. Through menu.	2	YES	YES
ITF400 	Address 0 From 0 to 24 I/O. Address 1. From 25 to 31 I/O.	24	NO	YES

INPUTS' MAPPING		
	Single Automatic Call	**Collective Call**
Input		
0	CEx (External Call)	Dx (Down Reservation)
1	--	Sx (Up Reservation)

OUTPUTS' MAPPING		
	Single Automatic Call	**Collective Call**
Output		
L0	OCC ('Busy' light signal)	LDx (Down light signal)
L1	PRESENT (car at floor light signal)	LSx (Up light signal) ('present)

→ **<u>Programmable function at address 10</u>**

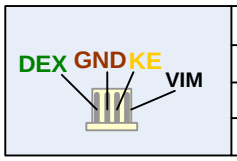
NOTE: In the case of collective plant you can decide to use the L1 output as present signal (set "0" or "16" at address 10).



ITF800 Serial Board for landing commands V1.1 Rev 0.3

-4 Led for diagnostics;
-Connect up to 2 push buttons and 2 lights or arrows managements;
-Beep for push button pressing
-Programming with jumper
-Power supply 12-24Vdc +/- 10%
-Supply current: 40mA max
-Extra small 22x60 mm

Serial connector PINOUT J1-J2



DEX	External serial data
GND	Power supply (-)
KE	External serial Clock
VIM	Power supply (+)

	Type of plant	
	Collective	Single call
J1	Dw Push-button and light	Push button and “busy” signal
J2	Up Push-button and light	Present light/SA(Alarm active signal)

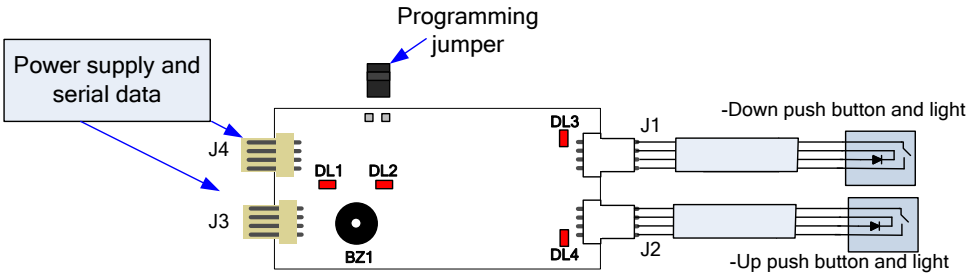
J3	Serial connector
J4	Serial connector
DL1	Diagnostic serial
DL2	Diagnostic serial
DL3	Status up push-button
DL4	Status dw push-button
BZ1	Buzzer

Push buttons diagnostic

	OFF	ON
DL4		
DL3		

Serial diagnostic:

DL1 :
-Slow blinking (1 sec on 1 sec. Off), the display receive the serial signals correctly.
-Fast blinking, serial Wiring incorrect or broken or programming serial disable from the control board or board in programming (jumper insert).
DL2 : Indicates the address of the floor (1 blinking= first floor), between a visualization and the other must wait 3 seconds.



PROGRAMMING

1) Insert the jumper programming (DL1 LED blinking fast);
2) Press a button (J1 or J2) N. times to the depending floor (first floor=1 pressure):for each press of the button, the buzzer sounds a short beep.
3) Remove the jumper programming to save the address of the floor;
4) To verify the programmed address, power cycle the board with the jumper insert. The buzzer will N. beep depending of the stored floor, or check the number of blinking on DL2 led.

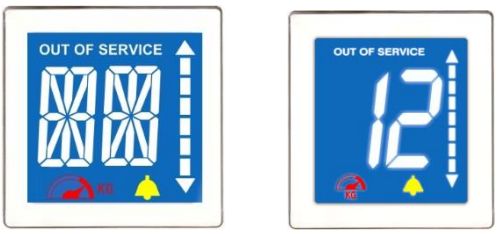
N° of floor	1°	2°	3°	4°	5°	6°	7°	8°	9°	10°	11°	12°	13°	14°	15°	16°	17°	--	32°
N° of pressure	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	--	32

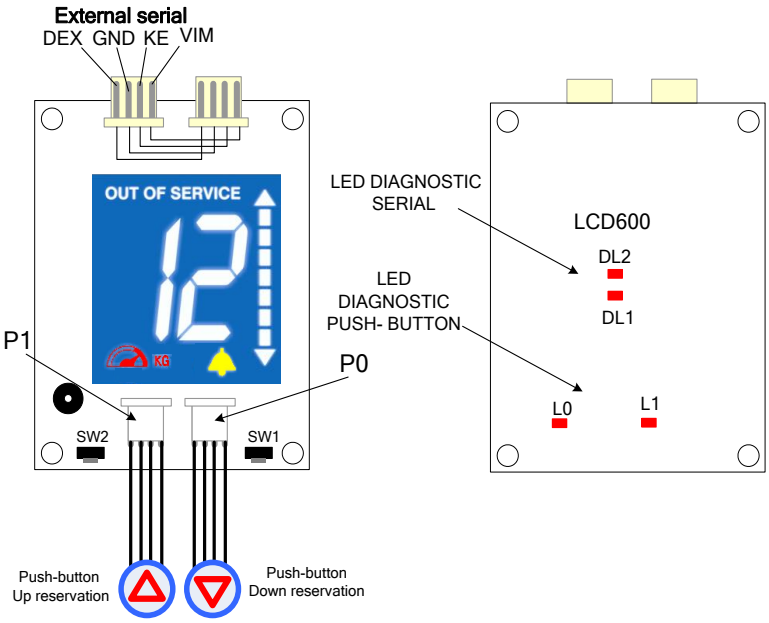
ARROW NEXT DIRECTION

The board I**TF801** V1.2 is used to connect the arrows next direction on the light of up and down. The call buttons are not used. It can connect to each floor a ITF800 for calls and a itf801 for controlling the arrows next direction.

LCD600-601 Display Icaro con la raccolta delle chiamate di piano:

LCD600 **LCD601**





LED'S DIAGNOSTIC:

Push-buttons: At the pression of push button the led switch on. L0 (Push-button P0) and L1 (push-button P1)

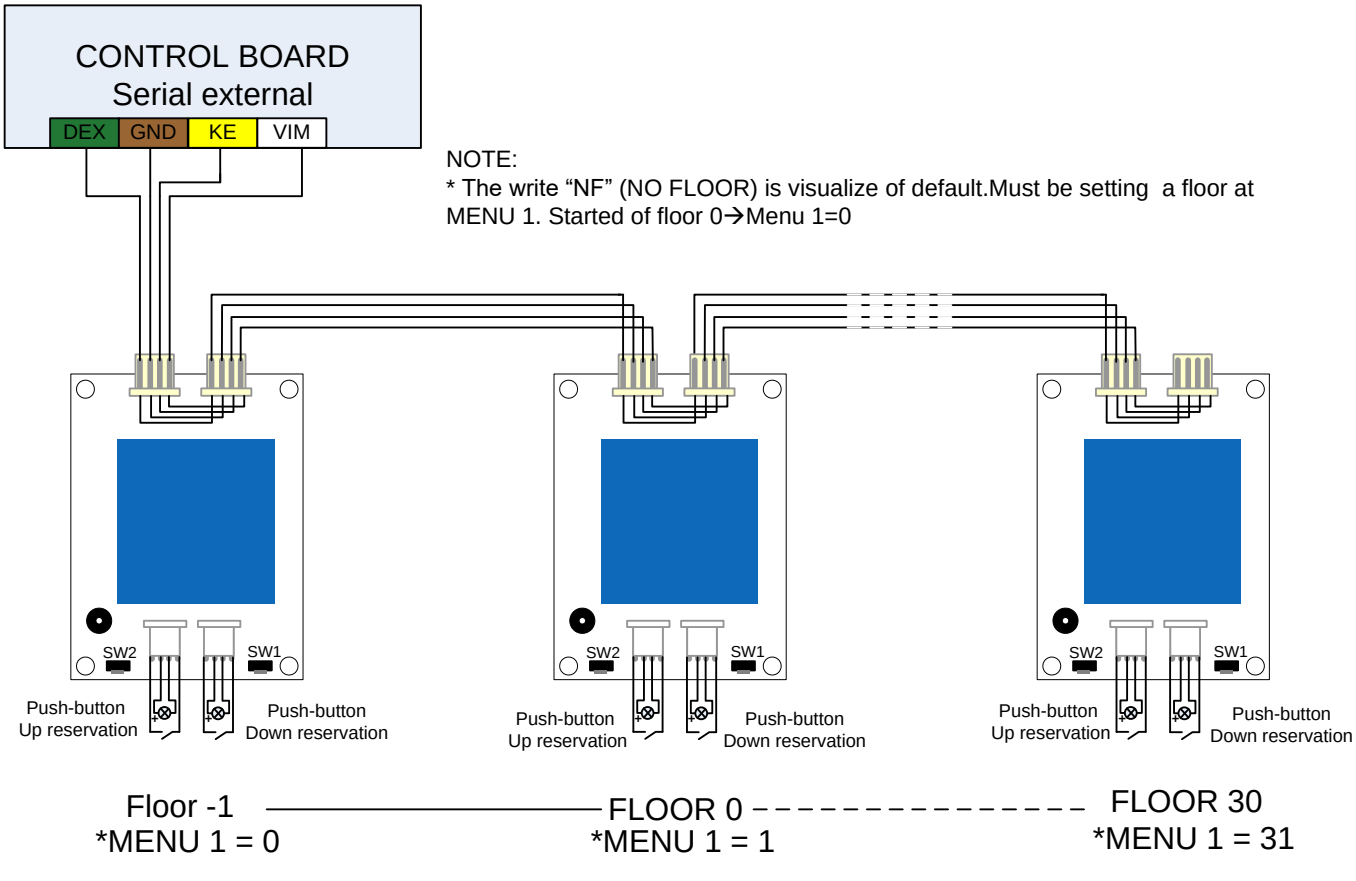
	OFF	ON
L0		
L1		

Serial diagnostic:

DL2: Slow blinking= run the system (1 sec on and 1 sec off);

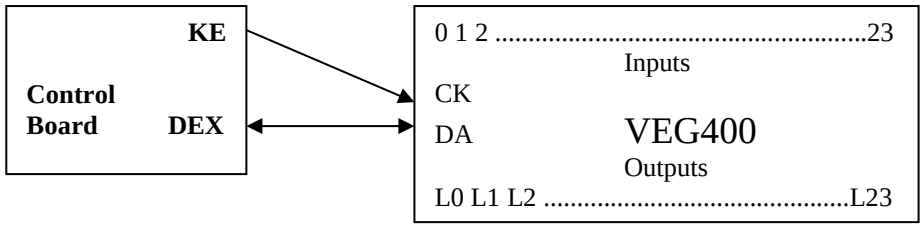
DL1: Slow blinking, the display riceve the serial signals. Fast blinking= Serial Wiring incorrect or broken, or menù 1=32.

EXAMPLE OF CONNECTION: Collective calls (UP-DW).



11.3.1 Collecting external calls with VEG400

The board VEG400 can be used to collect the external calls too. To do this you must connect the VEG400 board to the external serial channel as shown in the figure and program the control board adding at address 61 the value '+1'.



As for car calls, when collecting external calls with the VEG400 board, may be necessary two serial board depending on the number of landings:

- Less then 12, one serial board is sufficient.
- Equal to12, you can use one serial board, but FS and FD signals are not available.
- More then 12 (up to 16), you must use 2 serial boards. Up to the 12th landing, light signal and call's pushbuttons are connected to the serial board with address 0; for the other landings, light signals and call's pushbutton are connected to the second serial board (the one with address 1). The signals for the UP/DOWN direction light arrows (FS,FD) are also connected to the second serial board (address 1).

In the tables below is shown the Inputs\Outpus mapping when using the car's serial board to collect the external calls.

INPUTS				
	SINGLE CALL		COLLECTIVE CALL	
In	Add. 0	Add. 1	Add. 0	Add. 1
0	CE0	CE12	D0	D12
1	CE0	CE12	S0	S12
2	CE1	CE13	D1	D13
3	CE1	CE13	S1	S13
4	CE2	CE14	D2	D14
5	CE2	CE14	S2	S14
6	CE3	CE15	D3	D15
7	CE3	CE15	S3	S15
8	CE4	CE16	D4	D16
9	CE4	CE16	S4	S16
10	CE5	CE17	D5	D17
11	CE5	CE17	S5	S17
12	CE6	CE18	D6	D18
13	CE6	CE18	S6	S18
14	CE7	CE19	D7	D19
15	CE7	CE19	S7	S19
16	CE8	CE20	D8	D20
17	CE8	CE20	S8	S20
18	CE9	CE21	D9	D21
19	CE9	CE21	S9	S21
20	CE10	CE22	D10	D22
21	CE10	CE22	S10	S22
22	CE11	CE23	D11	D23
23	CE11	CE24	S11	S23

OUTPUTS				
	SINGLE AUTOMATIC CALL		COLLECTIVE CALL	
Out	Address 0	Address 1	Address 0	Address 1
L0	AD0	AD12	LD0	LD12
L1	AS0	AS12	LS0	LS12
L2	AD1	AD13	LD1	LD13
L3	AS1	AS13	LS1	LS13
L4	AD2	AD14	LD2	LD14
L5	AS2	AS14	LS2	LS14
L6	AD3	AD15	LD3	LD15
L7	AS3	AS15	LS3	LS15
L8	AD4	AD16	LD4	LD16
L9	AS4	AS16	LS4	LS16
L10	AD5	AD17	LD5	LD17
L11	AS5	AS17	LS5	LS17
L12	AD6	AD18	LD6	LD18
L13	AS6	AS18	LS6	LS18
L14	AD7	AD19	LD7	LD19
L15	AS7	AS19	LS7	LS19
L16	AD8	AD20	LD8	LD20
L17	AS8	AS20	LS8	LS20
L18	AD9	AD21	LD9	LD21
L19	AS9	AS21	LS9	LS21
L20	AD10	AD22	LD10	LD22
L21	AS10	AS22	LS10	LS22
L22	AD11/FS	AD23/FS	LD11/FS	LD23/FS
L23	AS11/FD	AS23/FD	LS11/FD	LS23/FD

NOTES

CEn = landing call push button at floor 'n' (single automatic call systems)
Dn = call push button to go down at floor 'n' (collective call systems)
Sn = call push button to go up at floor 'n' (collective call systems)
ADn = down direction arrival's light signal at floor 'n'
ASn = up direction arrival's light signal at floor 'n'
LDn = down direction reservation's light signal at floor 'n'
LSn = up direction reservation' s light signal at floor 'n'

NOTE: The address selection of the two car's serial boards when used to collect the esternal calls, is the same as when used to collect car's signals.